

# American Aviation

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EQUIPMENT

**JAN. 18**

**1954**

**V.17 #17**

◀ **Erle Martin**  
**General Manager**  
**Hamilton Standard 16**

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Confusion relating to security control of aircraft and missile data, which left the aircraft manufacturers caught in the middle between the Air Materiel Command and Air Research and Development Command, has been ironed out. Until decision has been made for quantity production for inventory purposes, ARDC will be the controlling agency, then AMC takes over.

Defense Department's efforts to ease security restrictions on marginal items, by eliminating the "Restricted" category, have largely failed. Individual services have generally upgraded information to "Confidential" and where this was not possible issued equally restrictive policy directives.

First strong aircraft industry criticism of Britain's lagging position in the fields of rockets, guided missiles, and atomic and thermo-nuclear power, has been voiced by Hawker Siddeley Chairman Sir Thomas Sopwith, who charged British industry has lost lead in some fields and is losing it in others through "timidity and complacency."

"Far seeing research projects" into these general areas, proposed by Sopwith, could lead to equivalent of the Brabazon Committee, which established the pattern for Britain's successful post-war transport program, including the turboprop Viscount and jet Comet.

Jet power milestone was passed by Pratt & Whitney Aircraft in 1953, which was first year in which more than half the engine power the company produced was in jets. Start of J57 production apparently tipped scales when added to large J48 production. P&W is still producing large numbers of piston type R-4360's and R-2800's.

Organized railroad pressure against non-scheduled airlines continues with increasing effectiveness in declining market.

Some carriers have been forced to lower C-46 charter rates from \$1.25 to \$1.10 per plane mile.

Non-skeds are also making signs of getting into the cargo business. A number of carriers with record of exclusive military passenger charter work have now published cargo tariffs, generally at rock-bottom rates and below scheduled airline minimums.

Latest railroad device is the "package bid combined with special government rates" by the railroads offering to carry "all or nothing" of large troop movements instead of filing individual bids. Airlines claim these bids run as much as 40% below railroads' regular tariffs.

Fortunes of probe-drogue system for in-flight refueling appear to be on bright side. USAF interest in refueling as many as four fighters at a time favors probe-drogue system over so-called flying boom type unit.

Best indication of growing support is \$11 million backlog of Flight Refueling, Inc., supplier of the system, recent new order totaling \$3.5 million, and company's activity building new production plant in Baltimore, Md.

U. S. Navy is also turning to probe-drogue system—using it on North American AJ-2's.



# The Washington View

## New Man for the ACC

The Air Coordinating Committee lost no time in looking for a replacement when Charles O. Cary resigned as executive secretary. Cary's successor was expected to be named as this issue went to press.

Commerce Under Secretary Robert Murray, who is also ACC chairman, said "Fortunately we have had a great many good names submitted, but that, of course, makes it only that much more difficult to select a man. It is also difficult," he said, "when you consider we have 12 member agencies to satisfy." ACC appointments require unanimous approval of the committee.

The pending national aviation policy review by ACC for the President added a note of urgency to filling the executive secretary spot. It has also been confirmed by Murray that an outside consultant is to be hired for assistance in writing the review. He, too, should be named shortly, Murray said.

Cary, who had held the ACC post for the past four years, is taking a position with the Curtiss-Wright Corporation. He entered Government service nearly 10 years ago, coming from the aviation industry, where he had been with both American Airlines and Alaska Airlines.

## Symington Bounces Back

Sen. Stuart Symington (D., Mo.), who fought in vain last year to restore the Eisenhower Administration's cuts in the Air Force, may have the last word yet. In the light of current events the former Air Force Secretary and staunch air power advocate has certainly been vindicated on the position he took.

Senator Symington has pointedly charged the Administration with having completely reversed itself. The Administration's program this year is to beef up the Air Force, he said, whereas a year ago it was to severely cut back the Air Force. The tragic result, the Senator said, has been a loss of two years and over one billion dollars.

A role of increasing importance in the Senate is foreseen for Symington, who last year suffered through the anonymity and setbacks of a freshman senator.

## CAB and Its Relations

The CAB has not always enjoyed the smoothest of inter-governmental relationships, and this fact has not escaped the attention of Congress. Currently suspect as troublesome areas in CAB matters are the White House and the Post Office Department.

What is being considered on Capitol Hill is the amending of the Civil Aeronautics Act to redefine and further clarify CAB-White House and CAB-Post Office relationships. Legislation to accomplish this will probably be introduced in the House.

## User Charges: Not Yet

The much heralded and long awaited Administration recommendation to Congress for legislation on imposition of user charges for the Federal airways apparently is not to come to pass. Instead CAA has merely presented its latest user charge study and report, which was just whipped into final shape by top Commerce Department officials, to the House Appropriations Committee.

Thus the problem was tossed back to the committee, which has, for a number of years, been citing the need for CAA user charges.

## First Reactions to ACC Review

First of the industry policy statements submitted to the Air Coordinating Committee for consideration in ACC's national aviation policy review came from the Air Transport Association, Aircoach Transport Association, and Transport Air Group. There was a wide divergence of opinion expressed by the three associations as to suggested policy. Highlights included:

- **Air Transport Association** finds the U. S. air transport policy set forth in the Civil Aeronautics Act has been a successful policy and should be continued. The Act should be followed to bring an end to the dual standards of economic and safety regulations now existent for certificated carriers and irregulars.

- **Aircoach Transport Association** calls for more freedom of entry into air transport service, to keep the field open to new enterprise and new ideas. As the independent airlines have demonstrated their ability to operate popular services without subsidy, blanket subsidies are no longer needed.

- **Transport Air Group** recommends a national aviation policy under which all government departments could employ services of cargo carriers on a contract basis, without being subject to regulations by CAB.

A six point legislation program proposes to (1) eliminate subsidies, (2) broaden the right of entry, (3) limit CAB's jurisdiction, (4) provide CAB's regulation of international rates, (5) permit carriage of surface mail by air, and (6) reduce air parcel post costs and charges.

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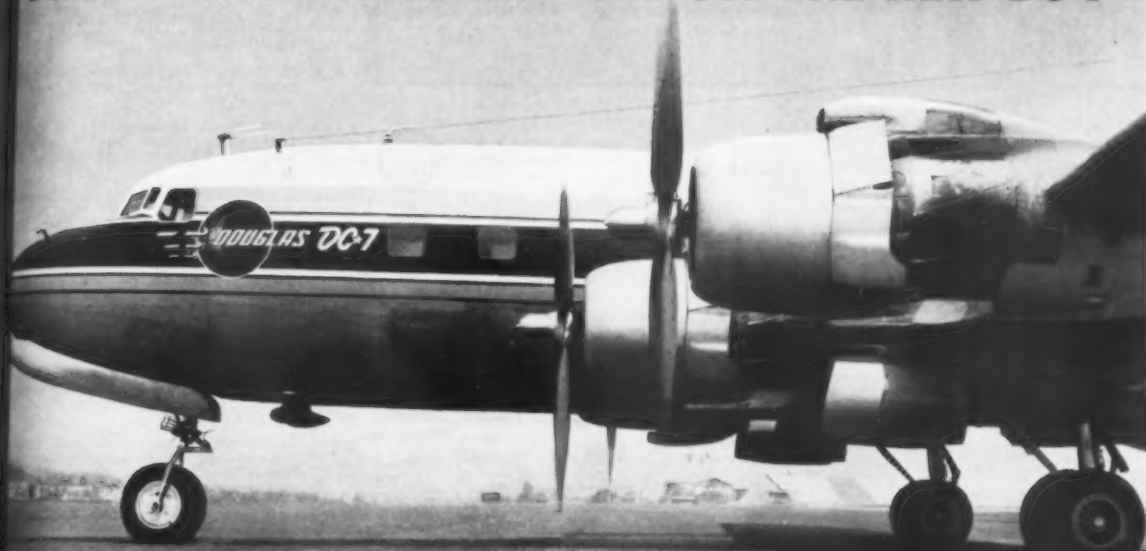
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# American Aviation

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#### OTHER PUBLICATIONS . . .

American Aviation Daily, a daily news service for the entire industry. \$200 per year. Managing Editor: Keith Saunders.

American Aviation Directory: twice yearly listing of products, people and organizations. \$7.50 each. Managing Editor: Marion E. Grambow.

Official Airline Guide: Monthly publication of airline schedules and fares. \$13.50 per year in USA; \$14.00 in Canada; \$15 elsewhere. Published from 139 N. Clark St., Chicago 2, Ill. Central 6-5804. Managing Editor: Robert Parrish.

American Aviation Traffic News (Incorporating Air Tariff Reports): Daily rates and tariff news. \$150 per year. Managing Editor: Wallace I. Longstreth.

## When & Where

- Jan. 18-22—American Institute of Electrical Engineers, winter meeting, Statler Hotel, New York.
- Jan. 21-23—Agricultural Aircraft Assn. annual convention, Bakersfield Hotel, Bakersfield, Calif.
- Jan. 25-28—Plant Maintenance & Engineering Show, International Amphitheatre, Chicago. Conference at Conrad Hotel.
- Jan. 25-29—Institute of the Aeronautical Sciences, 22d Annual Meeting, Statler Hotel, New York. Honors Night Dinner on Jan. 25.
- Feb. 3-5—Society of Plastics Industry, 11th Annual Division conference on forced plastics, Edgewater Beach Hotel, Chicago.
- Feb. 4—Instrument Society of America, 11th Annual Regional Conference, Statler Hotel, New York.
- Feb. 4-6—Institute of Radio Engineers, Southwestern Conference, Hotel Tulsa, Tulsa, Okla.
- Feb. 11-12—2d Annual Western Computing Conference & Exhibit, sponsored by American Institute of Electrical Engineers, Institute of Radio Engineers & Association for Computing Machinery, Ambassador Hotel, Los Angeles.
- Feb. 18-19—Institute of Radio Engineers, American Inst. of Electrical Engineers, transistor circuits conference, Philadelphia.
- Feb. 21-23—3d Annual Texas Agricultural Aviation Conference, Texas A&M College, College Station, Texas.
- Mar. 22-25—Institute of Radio Engineers, National Convention, Waldorf Astoria Hotel & Kingsbridge Armory, New York.
- Apr. 12-14—Airport Operators Council, 11th Annual Meeting, Tampa, Fla.
- Apr. 12-15—Society of Automotive Engineers, Aeronautic Meeting, Production Forum & Aircraft Engineering Display, Statler Hotel, New York.
- Apr. 22-23—American Inst. of Electrical Engineers, conference on feedback controls, Claridge Hotel, Atlantic City, N. J.
- Apr. 29-30—American Society of Tool Engineers, 10th biennial industrial exposition, Convention Center, Philadelphia.
- May 5-7—3d Int'l Aviation Trade Show sponsored by Aircraft Trade Shows, Inc., 71st Regimental Armory, New York.
- May 7-8—National Convention & Air Meet, National Inter-Collegiate Flying Assn., University of Illinois, Champaign-Urbana, Ill.
- May 10-12—Institute of Radio Engineers, National Conference on Airborne Electronics, Dayton Biltmore Hotel, Dayton, Ohio.
- May 16-19—American Association of Airport Executives, National Convention, Standiford Field, Louisville, Ky.
- June 7-14—Society of Plastics Industry, 11th National Exposition, Cleveland, O.
- June 21-24—Inst. of the Aeronautical Sciences, annual summer meeting, LAX Building, Los Angeles.

## INTERNATIONAL

- Apr. 5-6—Society of Plastics Industry (Canada) Inc., 12th annual conference, Mount Royal Hotel, Montreal.
- Apr. 10-13—German Air Show, Rhein-Main Airport, Frankfurt, Germany.
- May 12-14—Engineering Institute of Canada, Annual Meeting, Quebec.
- May 31-June 11—Canadian International Trade Fair and National Air Show, Toronto.

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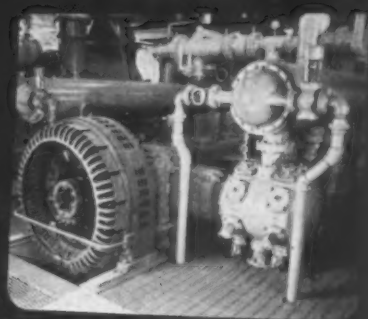
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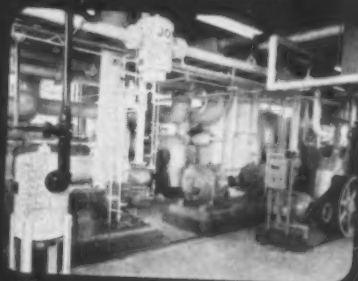
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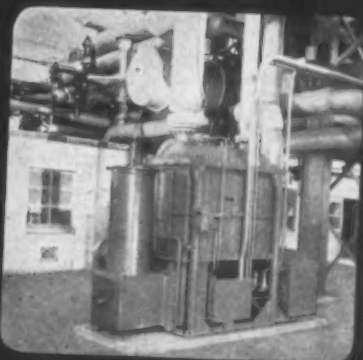
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# Letters

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## LOCAL CARRIERS AND THE STATES

To The Editor:

We were deeply disappointed to read your editorial "Doom Is Not Yet," contained in the December 7 issue of AMERICAN AVIATION.

Being very much aware of, and appreciative of, your consistent, constructive attitude toward the development of the local service airline industry and all phases of aviation, we honestly believe that you have misinterpreted both the intent and the effect of Mr. Adams' recent address to the National Association of State Aviation Officials.

Having had the opportunity of working closely with members of NASAO individually and collectively during our operations thus far, we believe that they were genuinely interested in receiving specific suggestions from a man who is not only a CAB member but also a former State Aviation Director, intimately familiar with their problems, as to what they, as a group, could do now to help in the development of the local service airline program of NASAO in their home states.

### Two Years Ago

Two years ago, Ozark Air Lines accepted an invitation from NASAO to address a similar annual meeting at Tucson to tell them from a carrier's point of view specifically what they, as a group, could do to help local service airline development. The suggestions, which were offered at that time, were followed by the states in our area, which were represented at the meeting.

We believe this demonstrates clearly that the interest of NASAO in a tangible local service airline development program for them to follow is not a "fly-by-night" idea. It would have been a complete waste of time for all concerned, and an insult to the intelligence of the State Aviation Directors to meet with them in November and tell them in substance that "somebody should do something about something!"

We did not consider Mr. Adams' talk in any sense of the word to be a desertion of the local service airline program or an "ivory tower" approach, insinuating that the CAB itself could not or would not take some further steps on its own to improve the local service airline program. We did consider the talk to be a sincere, thoughtful, constructive message to a group of people who are in a position to do a very effective job in this development if they are acquainted with the need, the facts, and a tangible program for them to follow.

• Mr. Adams' talk was not neutral—it either helped or hurt the local service airline industry. We sincerely believe the talk was and will be of great help to our company and the industry. Ozark alone, within a few days after the talk, received offers of complete assistance and cooperation along the specific lines outlined by Mr. Adams. In all probability other carriers have received similar offers.

• Your editorial of December 7 is not neutral—it will either help or hurt the local service airline industry. We believe it will do definite harm by detracting from the talk and by permitting those very states which may have been "dragging their feet" to use the Board's responsibilities as a convenient excuse once more for their own sad failure to turn a hand in helping this new industry establish itself.

Speaking from our company's point of view, your editorial provided more of a "terrific jolt" to us than did Mr. Adams' talk. We had been given the opportunity late last summer to furnish constructive suggestions for the preparation of the talk and were looking forward to it—we were not disappointed!

We feel there is ample cause for alarm today in respect to the future of the local service airline industry and that both Mr. Lee and Mr. Adams, who have consistently supported the local service airline program, are both constructive and realistic in sounding the "red alert" to the states, the communities, the carriers, and all concerned now before it is too late to correct and improve the situation.

If you don't believe there is cause for alarm today—if you haven't read and heard the ominous rumblings in Congress, the Commerce Department, and from the CAB itself—then we cannot believe that you get the same interpretation which we, as a local service carrier, get from reading the articles reporting those rumblings which have appeared in recent weeks in AMERICAN AVIATION and in the *Daily*, which are your own publications.

We have long appreciated your honest, objective, hard hitting editorial policy and can appreciate fully that an editorial which has already been published may be similar to an umpire's decision; however, we truthfully believe that an honest mistake has been made here, and that an injustice has been done not only to Mr. Adams and Mr. Lee, but to the local service airline industry as well.

We trust that you will present to your many readers who include, among others, our State Aviation Directors, our communities' representatives, and our own employees, the side of the picture which we have outlined in this letter to you.

LADDIE HAMILTON  
President

Ozark Air Lines, Inc.  
St. Louis 21, Missouri

To The Editor:

Your editorial "Doom Is Not Yet" in the December 7 issue of AMERICAN AVIATION, rendered the local service airlines a great service. Nothing was more aptly said than your statement that some local routes were granted without regard for sound economies.

It certainly looks as if some of those routes were issued to provide Midwest Trunkline with visible competition; to keep the anti-trust lawyers off his back. The local service airline whose assets will not buy a DC-7 is expected to compete with a fleet of 100 modern airliners. Two flights daily are expected to compete with 20 faster flights over the same route. The fact that the local line may deviate off course, to a small town which provides very little business, only lessens its ability to compete.

Certain U.S. trunklines cannot be to desired foreign countries, because that country's airlines cannot compete with U.S. carriers. The local service airlines are forced to compete with these same carriers. The more competitive the local routes, the less productive they are, and must be supported by the less competitive segments and the taxpayers.

The local service idea is sound, otherwise some of the trunklines would not be participating in the short haul so heavily.

The CAB has the answers. Please continue to bring this fact to the attention of the public.

GUY POPLIN

Box 671, Airport Branch P. O.  
Atlanta, Georgia

To The Editor:

Your editorial on Mr. Adams' Billings speech has been read with considerable interest. It would help you to a better understanding of the speech, I believe, if you would re-read it. I am inclined to believe that you perhaps did not give the speech your usual careful attention.

As I read the speech, Mr. Adams is still very much the champion of the local service program. Also, it appears to me that he is not so much concerned with the matter of an economically minded administration, but with the failure of the local service carriers to show improvement in their profit and loss statements.

Furthermore, he had at Biloxi a grass roots audience which was peculiarly well situated to take a genuine and constructive interest in the development of local service traffic. It is difficult to imagine a situation in which state aviation officials, if there must be such, could more appropriately expend their efforts.

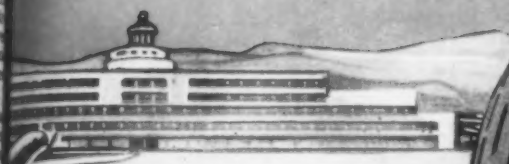
I hold no brief for Mr. Adams' position insofar as my professional relationships are concerned.

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(Contd. on page 52)

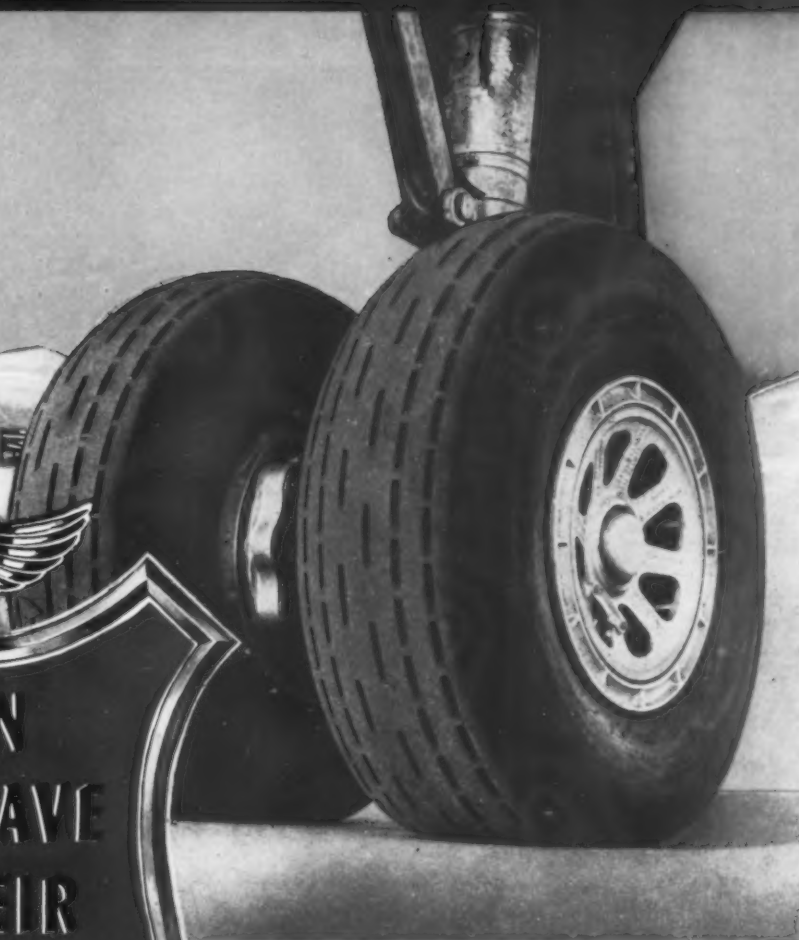
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JANUA



## Editorial

# Just Ten Years

WHAT is the difference between a column four *inches* high and a column 63 *miles* high?

The difference is 10 years. The difference is a single decade from 1944 to 1954. The difference is between the four-ton bomb load of our best military airplane 10 years ago in the midst of World War II and the four megatron power of the thermonuclear weapon which can be carried in our best airplane today.

by  
W. W. P.  
It was this startling illustration which C. R. Smith, president of American Airlines, used to hammer home the need for drastic revision of American military planning in a speech delivered last month in Tulsa, Oklahoma.

From all of the inside stories now resulting from the Joint Chiefs of Staff discussions, it is clear that the Air Force has had an uphill battle, against the strongest possible odds, to gain even a partial victory in the achievement of a position incontrovertibly clear in the light of today's warmaking weapons. Apparently only the strongest dictation by the top civilian command in the Pentagon toned down the traditional demands by other services for greedy handouts from the taxpayers to maintain an entirely obsolete military system.

Some progress, but not nearly enough, is being made toward trimming down the exorbitant demands for vast standing armies, for weapons and armament which would never be used if this country should have to face its major adversary. As C. R. Smith and others have pointed out, decisive actions in another major conflict would certainly come at once. The outcome would be settled, one way or another, in the span of a few weeks or months.

Too many so-called military strategists are fighting next year's war with the weapons, strategy, and techniques of the last war. They should read and re-read the dramatic illustration given by C. R. Smith to visualize the fantastic revolution in atomic weapons which has occurred within the past short decade. Our finest defense rests with strategic air power. To divert funds for an obsolete military system is not only pure waste but dangerous both to our economy and to our national safety.

## Vacuum of Bureaucracy

In the January 4 issue of this magazine a prominent and well-known aviation industry executive, writing under the pseudonym of "Mr. X," made one of the most damning indictments against the suffocating, choking, stifling effects of an inflated bureaucracy that we have read in recent memory.

Almost all of the recent developments on which our present system of defense is based, Mr. X said, were originated and developed outside of the U. S. A. To prove his point he named them—the Bofors gun, the Snorkel sub-

marine, radar, the jet engine, automatic fire control, and almost every other advanced weapon except the atomic bomb, and even here we had a major collaborator.

Is this because of the failure of American technology? By no means. This country has more skilled technical men available than any other nation in the world. But we have an army of 200,000 bureaucrats in the three military services who have taken it upon themselves to dictate and direct our technical developments. This bureaucracy has failed and will continue to fail. The sole solution is to let private competitive enterprise again have free play in the development of our military weapons so this country can regain what it has lost under the burdensome mass of bureaucratic controls.

As Mr. X pointed out, Germany was a totalitarian state, but it gave its highly skilled industries free play to develop new weapons. The U. S. prides itself on being a democracy, but the U. S. has shackled its technicians by a totalitarian bureaucracy. How long must we wait to get back on the road to survival?

## Slightly New Look

Whether the Civil Aeronautics Board will be reorganized in 1954 is still a big question mark.

It is difficult to predict what action can be expected on the bill introduced by Republican Representative Carl Hinshaw (see page 13), which would reorganize the top echelon responsibility for all civil aviation matters. This is especially true since Hinshaw's proposal was not coordinated with the White House staff, which is reviewing several proposals for reorganizing the Board.

Meantime the year opens with a new chairman. We think Chan Gurney was the inevitable choice from among the present membership. We think he will do well. He is far less embroiled in intrigues and less entangled in commitments than his predecessor.

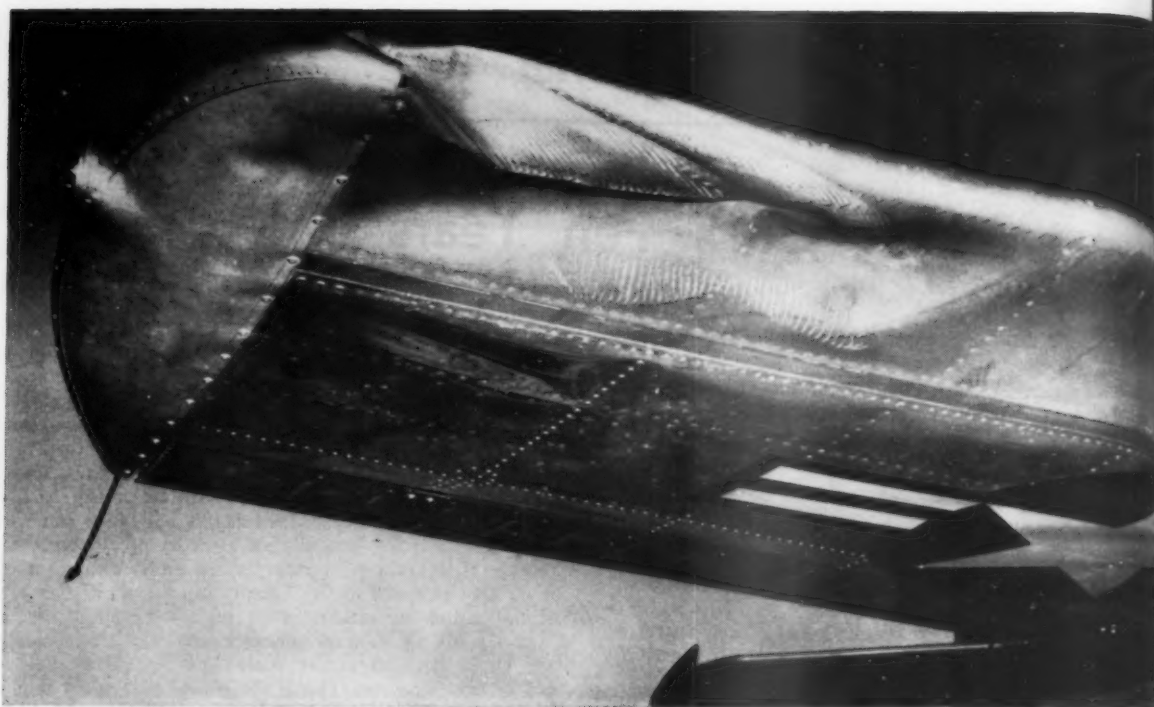
Harmar Denny, who has now been appointed for a full six-year term, is still largely an unknown quantity and is still finding the transition from Congressman to a quasi-judicial regulatory post somewhat baffling.

Despite the strengthening of the staff during 1953, the big question marks of the Board's ability to master the extremely complicated problems of the air transport industry still remain, however. We hope Chairman Gurney will make full use of his economic researchers to delve into the truly basic and fundamental problems which will face the industry inevitably if there is any marked decline in load factors.

Equipment financing, the various fare levels, the local service system, airport problems, jet, mergers, and equitable distribution of major traffic markets, are among the top problems.

We hope Chairman Gurney will set to work to dispose of the mass of lagging cases pending before the Board. That, in itself, would be a great achievement. The record of rate cases has been appallingly bad.

. . . WAYNE W. PARRISH



## the PLUS factor

All *Beechcraft* airplanes are designed and built to possess *more strength* than is required by government regulations. *Beechcrafts* have a *plus factor* which is intended to provide long life for the airplanes and extra safety for their occupants.

The photograph above shows the right wing of a T-34 (Mentor) *Beechcraft* after it hit an aerial cable in a canyon at full cruising speed. The cable did not break, but almost stopped the *Beechcraft* and spun it around, 350 feet above the canyon

floor. The skill of the military pilot was so great that he was able to regain flying speed and control before reaching the canyon floor. The T-34 *Beechcraft* trainer was flown back to its base and made a normal landing. Examination showed that damage was confined to the superficial contusions and abrasions shown in the photograph.

This is another example of the *plus factor* in *Beechcraft* construction.

The *Beechcraft* T-34 trainer is now in production for the U. S. A. F. and the military services of friendly foreign governments.



# Beechcraft

Beech Aircraft Corporation, Wichita, Kansas, U. S. A.

Beech Builds: USAF T-34A • USAF L-23A • USAF C-45H • USN SNB-5 • Model 35 Bonanza • Model 50 Twin-Bonanza • Model 18 Executive Transport

## Industry Spotlight

The Pratt & Whitney J57 engine, which powers the Boeing B-52, North American F-100, and other new fighters, is reported to weigh about 5700 pounds in advanced models, making it the heaviest as well as the most powerful aircraft engine in production.

Air Force supplies and materiel processed through the Air Materiel Command in 1953 totaled some 4,269,000 tons of equipment, about five per cent less than in 1952, due to the Korean War truce. AMC's Directorate of Supply and Services processed some 38,400,000 items.

Slippages in production, which received so much attention during Defense Secretary Wilson's "more for less" fund cutting last year, have been cut to the bare minimum, according to the Air Materiel Command. In a year-end report AMC said the aircraft industry delivered an average of 97.7% of the aircraft called for in its current schedules during the past six months. Production rates were up 467% over mid-1950.

Automatic hovering for helicopters has been achieved by the Hastings Instrument Co. and Raydist Navigation Corp. at Patrick Henry Airport, Warwick, Va. Hastings' Raydist navigation system was issued in combination with an unspecified auto-pilot for the experiments.

Materials required to build a jet fighter airframe and engine in 1953 included 20,129 pounds of steel, 513 pounds of copper, and 19,440 pounds of aluminum. This compares with 7198 pounds of steel, 186 pounds of copper, and 9273 pounds of aluminum for some of our earliest jet fighters. Figures do not include titanium, now in extensive use, which was not in use in the first jets.

The USAF is seriously considering a plan that would place a number of Douglas C-124 aircraft in civil hands on a lease-hold arrangement, thereby removing a major obstacle to approval of appropriations for large scale orders of such new cargo transports as the Lockheed C-130.

Collins Radio Company of Cedar Rapids, Iowa, has developed a bread-board version of an automatic pilot system which uses no electron tubes. System has been installed in the company's twin-Beech and has recently demonstrated to a major airline. Autopilot development rounds out Collins' work on complete automatic flight systems, complementing its integrated flight system.

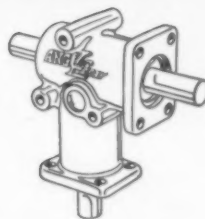
New policy in Air Materiel Command to speed up engineering of fixes for aircraft accessory design and manufacturing defects is to let pilot overhaul contracts with the manufacturers of the equipment.

First reports of the availability of the Curtiss-Wright T49 turboprop engine, slated to power the jet/turboprop-powered Boeing B-47D, indicate it will be ready in 1957. Incidentally, the B-47D, which uses T49's in the place of the inboard jet pods, may prove to be Boeing's main competitor for the Boeing 707 jet refueler. The B-707 will be available earlier. It is making its first flight this year.

Engineering and conversion rights for the Riley Twin Navion configuration have been purchased by Temco Aircraft Corp. from Dauby Equipment Corp. of Los Angeles. Riley Aircraft Sales Co. of Dallas, Tex., which contracted with Temco for conversion of 100 Navions starting about nine months ago, will continue as sales and distribution agent.



## SERVES IN NAVY'S HUP-2



This right angle drive is part of the control system for the fuel shut-off valve. ANGLgear is often the choice when compact design and high capacity are required. These qualities make it a favorite among designers—specified equipment in many aircraft.

Model R-300 is rated at 1/3 hp at 1800 rpm—Model R-320 at 1 hp. Both models have hardened gears and ball bearings, are lubricated for life. Both are made with 1:1 ratio and with 2-way or 3-way shaft extensions.

ANGLgears are described fully in the I.A.S. Aeronautical Engineering Catalog. Refer to this publication for complete information, or write us direct.



### ACCESSORIES CORPORATION

1414 Chestnut Avenue  
Hillside 5, New Jersey



## Low-pressure seal prevents high altitude blowouts

**B**UBBLE type canopies on fast military planes like North American's Super-Sabre had to be safely pressurized at altitudes of 8 miles or higher. Ordinary inflatable seals between the bubble and cockpit would often blow out from the effect of low pressures on the outside, high pressures on the inside.

B. F. Goodrich engineers were called in on the problem. A really effective seal, they believed, should operate with low pressure and stretch very little or not at all. Less stretch would mean less strain. They worked out a seal with a U-shaped solid rubber base. A rubber-

ized fabric diaphragm nested inside the base simply *lifts* when inflated. (See diagram above). It works like blowing up a paper bag—low pressure gives full expansion with practically no stretch. Dangerous stretching of tube wall (like blowing up a toy balloon) is eliminated.

The new inflatable strip seal works almost instantly. Even at minus 65° it inflates with less pressure than ordinary seals needed at room temperature. There are other advantages. It resists wear and damage better than ordinary seals. It fits complex curves better. It seals and unseals faster. Sliding wear and scuffing

are minimized.

The new B. F. Goodrich seal is now in use on more than a dozen makes of planes, including latest jet fighters and bombers.

Other B. F. Goodrich products for aviation include: tires, wheels and brakes; De-Icers; heated rubber; Pressure Sealing Zippers; fuel cells; Rivnuts; accessories. *The B. F. Goodrich Company, Aeronautical Sales, Akron, Ohio.*

### **B.F. Goodrich**

FIRST IN RUBBER

AMERICAN AVIATION





*Carl Hinshaw*

His bombshell dropped:



*Robert B. Murray*

His aviation duties cut?



*Fred B. Lee*

His job abolished?

## Hinshaw Proposes Bill to Reshape CAB

**Measure would replace Board with Commission, replace CAA head with new Under Secy. of Commerce.**

By PREBLE STAVER

THE RECONVENING of the 83rd Congress earlier this month was met seemingly with only casual interest in aviation circles, both governmental and industrial. Then Rep. Carl Hinshaw (R., Calif.) dropped a bombshell that shattered all complacency. His proposal: a complete shake-up of top level government personnel handling civil aviation functions.

The California lawmaker incorporated his proposal in a legislative package that would revamp the entire structure of Federal administration of civil aviation's regulation, promotion, and safety. Not only the Civil Aeronautics Board, but the Civil Aeronautics Administration and Department of Commerce are also included.

Hinshaw's bill, H.R. 6895, the first he dropped in the legislative hopper this session, provides for a clean sweep. It would be accomplished with four major changes:

- **Abolition** of the Civil Aeronautics Board;
  - **Establishment** of a Civil Aeronautics Commission;
  - **Abolition** of the position of Administrator of Civil Aeronautics;
  - **Creation** of a post for an Under Secretary of Commerce for Air Services.
- The real impact of the Hinshaw bill is that it provides a means of wiping out the positions of those presently administering the Civil Aeronautics Act, but leaves the basic law intact. It enables the Administration to replace all five

members of the CAB, to strip Under Secretary of Commerce Murray of all aviation activity, and to provide new lines of authority for CAA.

What is called for, in effect, is replacement of the Civil Aeronautics Board with a new independent agency to be known as the Civil Aeronautics Commission and replacement of the CAA Administrator with a new Commerce Under Secretary for Air Services.

The proposed measure would also prevent the Secretary of Commerce from delegating the authority he has for aviation to any one other than the Under Secretary for Air Services.

For some time now there have been an increasing number of signs of concern over the so-called "situation" at the Board. More recently, objections have become widespread as to the approach being taken on aviation matters by the responsible Eisenhower Administration officials. Those complaining claim the fault lies in a lack of aviation





**SHUFFLE IN CAB**, if it transpires, will not necessarily mean disappearance of present members from scene. Above, left to right, new Chairman Chan Gurney, Joseph P. Adams, Josh Lee, Oswald Ryan, and Harmar D. Denny.

knowledge, plus a failure to show a serious or sympathetic interest on the part of the new spokesmen on national air policy, failings which are pointed up by the officials' backgrounds.

These stirrings and rumbles of dissatisfaction apparently have reached the White House, for there have been recurring reports that the Administration has under consideration, for the CAB at least, an executive reorganization plan.

It is noted with interest, though, that a positive plan for changes in both CAB and CAA has come first as a legislative plan rather than as a reorganization. Of course, the Administration may still submit a plan of reorganization to Congress, but the sentiment on Capitol Hill is more in favor of action, if it is deemed necessary, by legislation.

Only this month, however, the leadership of the Board was reshaped for the current year. The President designated former South Dakota Senator Chan Gurney as chairman and reappointed ex-Pittsburgh Congressman Harmar D. Denny to a new six-year term. Denny was also designated to repeat as vice-chairman of the Board in 1954. He joined the Board last April as the first CAB appointee of the present Administration.

Gurney has been a CAB member since March 12, 1951, and has until December 31, 1958, to serve under his current term. He replaces Oswald Ryan as chairman. Ryan held the post for the past 14 months, with prior Board service as a Member since 1938. His current term expires at the end of the year.

All three—Gurney, Denny, and Ryan—are Republicans. Josh Lee and Joseph P. Adams round out the Board and are both Democrats.

Currently heading up the CAA as Administrator is Fred B. Lee, who reports directly to Robert B. Murray, Jr., Under Secretary of Commerce for Transportation, both of them taking office with the Administration a year ago.

**Murray's jurisdiction** over CAA and other aviation matters comes from authority delegated to him by the Secretary of Commerce. He is also the Department's representative on the Air Coordinating Committee and was designated chairman of the group by the President.

The jobs of these men then, the present five Board members and Lee, would be done away with, in addition to Murray's being relieved of some duties, if the Hinshaw bill is enacted into law by Congress.

**Asked what prompted** his decision to introduce a measure revising the direction of government aviation functions, Rep. Hinshaw said that he too had heard there was some thought by the Administration of an executive reorganization plan. "I considered it would be a good idea to come in with a legislative plan," said Hinshaw. The bill should, he added, "at least stir up some thinking." The latter has already become the understatement of the new year.

Hinshaw is deadly serious about his bill. Of course, as he himself cautions,

the introduction of a measure is only the start. However, as it has already been referred to the House Commerce Committee, of which he is ranking majority member, the Congressman can still keep close tabs on the next step in the procedure. The possibility of early hearings seems remote, because of other committee work which has priority at the moment. Rep. Charles Wolcott (R., N. J.), who is committee chairman, is expected, however, to request an immediate report on the bill from the Commerce Department.

"If they don't like the bill," Rep. Hinshaw says, "we'll want them to tell us why. And in that case," he continues, "I would presume it will mean they will come up with an alternate plan that they may feel is better, and we want to hear all about that."

**Under the plan** in Hinshaw's bill all of CAB's present functions and duties would be transferred to the CAC. The Commission is to be composed of five members at the same salaries, for the same terms of office, and with the same requirements presently in effect for the Board. As it would affect CAA, the major change would be a lifting of the unit's status by having its directing head at a sub-cabinet level.

"I find that the duties of CAA Administrator are slowly but very surely being absorbed by the Under Secretary for Transportation," says Rep. Hinshaw. "So, there's no further need" for him. And therefore, we should set up a new secretary with exclusive jurisdiction on air matters."

This would not, of course, include activities of the regulatory agency. There have been reports that CAB might be merged into the Commerce Department.

"I would be against such a move," Rep. Hinshaw comments, "because CAB is no business of the Department's. You can't mix politics with a regulatory agency—a quasi-judicial body."

It should be added that it is explicitly expressed and reaffirmed in the Hinshaw proposal that the regulatory agency (CAC) is to be independent, an arm of Congress.

So far there has been no indication that a companion measure to Hinshaw's H.R. 6895 will be presented in the Senate, but considerable interest is being shown in the subject.

Sen. Pat McCarran (D., Nev.), who authored the 1938 Civil Aeronautics Act, is again pressing for a complete redraft and seems to think there is a better than fair chance to get some action this year. He will have the support of Carl Hinshaw on the House side. Says Hinshaw: "I agree the Act should be redrawn, and we'll get around to that yet."

## Detweiler To Head Chance Vought, Inc.

Frederick O. Detweiler, formerly manager of United Aircraft's Chance Vought Aircraft Division, has been elected president of Chance Vought Aircraft, Inc., which is scheduled to become a completely separate firm by the end of 1954.

Other division officials elected include H. B. Sallada, vice president; N. V. Turney, controller; B. W. Whitten, treasurer; and J. J. Gaffney, secretary.

United Aircraft Corp. president H. M. Horner was named to head the Chance Vought board and two other UAC officials, W. R. Robbins, v.p. and controller, and C. J. McCarthy, v.p., were elected directors of the Dallas firm. Other directors will be selected from the Texas area.



**Newest jet trainer,** a two-place tandem version of the North American F-86, claims a top speed of over 650 miles per hour. Fuselage is five feet longer than that of the fighter. Two .50 caliber machine guns can be mounted.

## Webster Leaves NAA

Donald D. Webster has resigned as general manager of the National Aeronautic Association. Charles L. Logdson, assistant-secretary-treasurer, will serve as interim general manager, until a successor is named.

## Examiner Recommends 5-Year S & W Certificate

Seaboard & Western Airlines has been recommended by CAB Examiner Herbert K. Bryan for a five-year certificate to conduct trans-Atlantic all-cargo services.

Route would be between the terminals New York, Philadelphia, and Baltimore; intermediate points in Newfoundland and Ireland; and beyond Ireland to intermediates in England, The Netherlands, Belgium, and a terminal point in Germany. Another leg would extend from Ireland to an intermediate point in France and a terminal in Switzerland.

Bryan selected Seaboard as "the most able of all the applicants to develop the trans-Atlantic air cargo potential." Others applying were Transocean, Flying Tigers, Overseas National, Trans Caribbean, and European-American.

Bryan concluded that a market of "between 60 and 65 million" pounds of traffic is immediately available between the U.S. and Europe at rates yielding about 20¢ per ton-mile. He estimated over half of that amount would be available for development by a new carrier such as Seaboard.

The recommendation is subject to CAB approval and final White House action.

## Slick - Tiger Merger Approved by Board

CAB has approved the merger of Slick Airways into The Flying Tiger Line, subject to compliance with usual labor conditions. Board vote was 5-0.

Flying Tigers will be the surviving corporation with the combined system operating as "Flying Tiger-Slick Airlines." Robert B. Prescott, current FTL head, will serve as president of the merged firm.

In approving, CAB emphasized that its action is not to be related to the question of renewing the temporary five-year certificates of the carries which are slated to expire August 12, 1954. "Our present decision," Board

said, "will in no way prevent us from renewing, modifying, or not renewing these certificates when they come before us."

Specific finding of the agency was that the merger "is consistent with the public interest, and will not result in a monopoly or restrain competition or jeopardize other air carriers." Latest available figures show the merged fleet of the two airlines will total 4 DC-6A's, 11 DC-4's, and 45 C-46's.

Agreement to merge was filed for CAB approval last March and approved by stockholders of both firms in August, 1953.

## ARDC To Try Piston Planes as Turboprops

Modification of seven reciprocating-type cargo aircraft into turboprop transports is being conducted in the Air Research and Development Command's turboprop test program.

The following planes will be provided with Pratt & Whitney T34 turboprops: two Boeing C-97's, two Lockheed C-121 Constellations (procured from Navy production under joint AF-Navy agreement), and one Douglas C-124. Two Convair C-131 twin-engine transports will be modified with Allison T56 turboprops.

With some of the aircraft scheduled to fly early this year, ARDC hopes to rely on standard handling and service facilities and is particularly interested in acquiring data on technical difficulties encountered, maintenance problems, supply consumption, and reliability in conforming to planned flight schedules.

Such information will be made available to the aircraft industry and the airlines, ARDC officials said.

## Martin Officers Buy Over 10% Interest

Two top officers of The Glenn L. Martin Co. have purchased more than a 10% interest in the firm through a personal holding company. George M. Bunker, president, and J. B. Wharton, Jr., financial vice president, acquired 217,152 of the 2,134,312 outstanding shares through the Wealden Co. The two men and close associates own more than 75% of Wealden, enough to make it a personal holding firm. Wealden still holds options to purchase 4167 additional shares.

Bunker owns 1900 Martin shares in his own name and holds options to buy 70,000 more. Wharton holds no Martin stock directly but has the right to purchase 32,000 shares. Both men joined Martin in February, 1952.



Hamilton Standard's new Turbo-Hydromatic propeller, shown during flight testing in the nose of a B-17, is now in production.

## 800 MPH Speeds Forecast for Turboprops

**New propellers and higher power engines will put turboprop into speed realm formerly assigned to jets.**

By WILLIAM D. PERREAULT

**A** NEW and authoritative voice was added to the rapidly mounting support for the turboprop powered airplane as a worthy competitor to turbojet types this week as Hamilton Standard's general manager, Erle Martin, released portions of a detailed engineering survey of future powerplant requirements.

Hamilton Standard, division of United Aircraft Corp., has concluded that:

- **Propeller types now under development** will permit efficient use of turboprop powered aircraft at speeds of up to 800 miles per hour.
- **Contrary to popular opinion**, advances in basic jet engine design will prove more advantageous to turboprops than to turbojets due to inherent characteristics of the two types.
- **The turboprop's advantages** are not restricted to commercial or military transport operations; they are of particular importance for providing needed range for bombing operations.
- **The turboprop can prove a major answer** to the noise problem associated with jet aircraft. Use of eight-bladed propellers and approximately 40% lower rotational speed "would make possible noise levels quieter than those of today's piston engine aircraft."
- **Direct operating costs** of the turboprop transport, operated over domestic routes at 500 miles per hour, would be 15-20% lower than comparable turbojets; on international routes this advantage would be as high as 20-25%.

Said Martin: "Studies by Hamilton Standard engineers and independent organizations have shown that a turboprop engine will give two to three times more thrust than a turbojet of the same basic size at airplane speeds below that



SIZE of one new propeller is evident in photo of installation.

of sound. Therefore, the thrust of a turbojet can always be provided by a turboprop engine of smaller size, which will have a low fuel consumption. This leads to a greater range for an aircraft of a given size, or permits a smaller and therefore more economical aircraft to carry the payload."

Documenting his company's claim, Martin released a detailed technical report prepared by C. Branson Smith. Smith's report delves into a half dozen areas of vital concern to commercial airline operators, including the noise problem, airport requirements, safety, the effects of future technological engine developments, operational advantages, and, of course, economics.

• **Noise:** Hamilton Standard's conclusions regarding the noise situation are best depicted in the accompanying chart. Note the shaded area which represents the distance, during take-off, when piston engine noise levels cause interference with normal conversational tones. This is sharply limited by comparison with the broken turbojet noise contour lines.

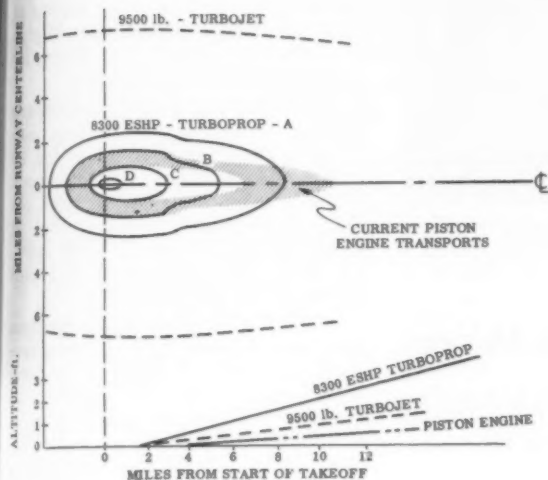
Turboprop aircraft with standard propellers extend noise areas to about double those of the standard piston engine transport. As the turboprop airplane climbs, the noise level drops off more quickly than with the turbojet or piston engine planes, due to the rapid rate of climb of this type aircraft.

Also shown are the "potentialities of propeller silencing" by increasing the



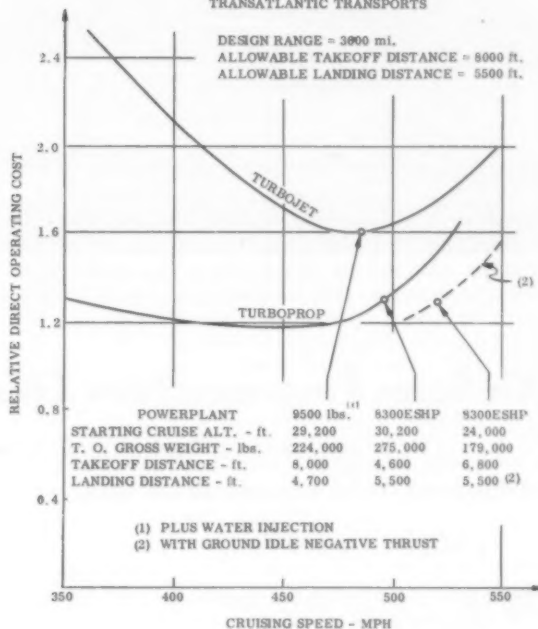
## Turboprop Superiority – in Noise and Cost

NOISE LEVEL CONTOURS FOR  
OBJECTIONABLE SPEECH INTERFERENCE



TURBOPROP	A	B	C	D
DIAMETER - ft.	16	18	18	18
NO. OF BLADES	4	4	6	8
RPM	1250	1000	960	670

COMPARATIVE OPERATING COST  
OF 75 PASSENGER  
TRANSATLANTIC TRANSPORTS



number of blades from four to eight and cutting prop speed by 40%, although the weight penalty of this drastic change might not be acceptable.

In this example, however, turboprop noise falls below that of the piston engine transport. The graded improvements possible with lesser changes are also shown.

• **Safety:** Smith put considerable emphasis on the safety aspects of the reversible prop for stopping the aircraft on the runway. "In general it is indicated that with reversing the ground roll of an aircraft can be reduced to 40% or less of the braking-alone roll... In addition, reversing, if anticipated in the design stage, will, for high speed aircraft, normally permit increases in wing loading and cruising speed, which, in turn, reduces operating cost."

By idling the engine during landing approaches, the turboprop produces a negative thrust which cuts airborne distance from the 50' obstacle to touchdown by about 30%. This aids instrument approaches and combined with the high thrust of the turboprop at low speeds proves a valuable safety factor in the event of a missed approach.

Applying the results of Hamilton Standard's analysis to specific aircraft and route combinations, Smith sees many advantages to the turboprop trans-

port. The take-off run will be one half or less than that of a turbojet designed for the same cruising speed and altitude. At cruising speeds between Mach 0.7 and 1.2 it will have greater range than a turbojet of similar weight due to the 20-30% lower fuel consumption.

• **Future:** Even the most ardent turbojet engine enthusiast grants that an efficient turboprop engine, were it available in production today, would serve a vital role. But these same men

claim that by the time such an engine is ready, the turbojet—with its day-by-day improvements—will have rendered the turboprop obsolete.

Smith does not accept this. The turboprop's high efficiency, double that of the turbojet at 500 miles per hour, is the product of moving a large column of air at low velocities as contrasted with the turbojet's small column flow at high velocity.

The trend of jet engine improvements center around the improved combustion processes. These are reflected in increased jet stream velocity, reduced propulsive efficiency, high turbine inlet temperatures, and higher specific fuel consumption. Concludes Smith: "The turboprop will benefit more by improvements in gas generator design than the turbojet."

• **Economics:** Martin summarizes the advantages this way: "For a Paris to New York flight, the survey showed, a 75-passenger airplane powered with 8300 horsepower turboprops would be superior to one using turbojets of 9500 pounds thrust in the following categories: Higher cruising and block speeds; approximately one-third lighter for take-off and one-fifth lighter for landing; smaller wing area; and lower direct operating cost." • • •

### On the Cover

**Erle Martin**, general manager of Hamilton Standard, division of United Aircraft Corp., is heading up an intensive review of the role of the propeller. With UAC's propeller division since 1931, Martin is credited with major contributions to the development of controllable, constant speed, feathering, and reversing propellers. Prior to his present association, he worked with Air Propellers, Inc. as project engineer. He received his present appointment in 1946 and was elected a vice president of United in 1952. His name appears on about 72 patents for inventions improving aircraft propellers.

Martin is a native of Tullahoma, Tennessee.



CHAINS AS LANDING BARRIERS to save planes from overshooting are one USAF cost-cutting project. One such device saved \$9 million in 3½ months in Korea.

## Air Force Programs New Economy Moves

New operational techniques, closer watch-dogging of finances, have already saved quarter billion dollars.

By HARRY S. BAER, JR.

WHEN the Air Force reports to Congress on its management progress, it will confront the legislators with a storehouse of data showing that the USAF is making economic headway in getting "more for less."

The information to be presented might well reduce some of the early Congressional skepticism about Defense Secretary Charles E. Wilson's economy-inspired plan calling for less spending with greater military effectiveness. Wilson's "more for less" theme has been considered by many



H. Lee White

a pipe dream or just talk aimed at pacifying critics of his economy drive.

Actually, tighter, more efficient management control in 1953 has been credited with allowing the AF to increase its strength by five wings, a year ahead of the target date. Only 110 wings by June of this year were initially anticipated. Now it appears that the figure will be 115, possibly slightly more.

From where White is sitting, the 120-wing goal by June, 1955, is a mark within very easy reach. By this date, it is likely that the AF will have more wings than that.

H. Lee White, management troubleshooter who goes by the title of assistant AF secretary (management), will be well stocked with an arsenal of such "more

for less" management economy material when he goes to Capitol Hill to present the AF story on fiscal, manpower, and organizational matters.

He will show that USAF efforts in this direction have already paid off to the tune of a quarter billion dollars, and that the present period is particularly ripe for savings running into the billions.

Among the efforts which show considerable promise:

• **Landing barrier chains:** Installation at USAF bases of barrier chains, similar to those used in Korea and based on Navy aircraft carrier arresting gear, is being considered. Cost of installing such equipment at more than 30 airfields would be paid for if only two fighters were saved from crashing. In Korea during a 108-day period, barrier chains across runways stopped 30 planes, saving some \$9 million.

• **B-47 power supply units:** The AF made a study in November of B-47 bases. It determined that about \$2.5 million could be saved by simplifying the installation of electrical power supply units at the parking aprons of the Stratojets. The stationary equipment for starting the jet bombers' engines would eliminate many costly items.

• **Droppable fuel tanks:** Increased emphasis is to be placed on the standardization of these tanks to ensure that at least one type of tank is always available for delivery with new aircraft. Such production is designed to reduce the cost of tanks and cut down waste due to obsolescence. Reserve supplies would be greatly simplified. In the past certain types of tanks have been in short supply for some planes.

• **Engine life expectancy computation:** This has already paid off with the General Electric J47 turbojet. Application of actuarial methods for computing its life expectancy showed an increase from 150 to 300 hours, resulting in a reduction of orders for 4000 engines which would have cost more than \$200 million. The method is being applied to other engines under procurement. Higher life expectancy also saves money for spare parts and overhaul facilities.

• **Inspection and repair as necessary:** Slashing of aircraft maintenance costs has been proven possible by setting up an inspection and repair system concentrating on trouble spots. It rules out complete, routine reconditioning of planes, but does not impair flight safety. The new plan will save an estimated \$23,400,000 by June 30, 1954.

• **Jet engine minor repair program:** More than a dozen U. S. air bases have been completely equipped to perform minor repair work on turbojets, increasing time between overhauls some 40 to 50%, reducing the number of engines out of commission, and cutting costs of transporting engines to and from depots. Some 75 others are partially equipped for this work, and soon these will be able to do full minor repairs. No provision for jet engine parts, tools, and test equipment had initially been provided with turbojet procurement. Now engine manufacturers have been asked to design future engines that are easily repairable in the field.

• **Airlift of engines:** Routine distribution of engines by air is being tried to cut down pipeline time. Called project "Sky Way," the engine airlift has shown that pipeline time can be directly reduced. In addition, the capital investment in spares is lowered (see page 22).

• **Flying repair shops:** The AF is showing more interest in trailers containing maintenance equipment needed for quick, on-the-spot repairs of complex airborne systems. Put in use in Korea last spring, the trailers are flown to trouble areas, saving time and money by repairing equipment which would have had to be funneled through a long supply and maintenance pipeline.

These economy-inspired examples of what the AF is doing to get more for less are only a part of the entire management improvement picture, but they are indicative of what can be and is being done in the material field.

Much of White's ammunition of this sort, particularly on the materiel side, has been obtained by a group of key AF men called the Expenditure Committee, the members of which meet monthly at the Pentagon to save money and increase AF effectiveness. White chairmans these meetings, attended by each Assistant Deputy Chief of Staff.



White's work is also heavy on the manpower side. Manpower juggling was one of the big factors in permitting the AF to achieve more wings earlier than expected. The assistant AF secretary, who handled manpower and personnel for the Navy Secretary during World War II, is just as interested in men as he is in money. He is working hard to have fringe benefits restored to service personnel.

In addition he has revamped AF personnel distributions extensively with such plans as:

- **Hiring** native born personnel at overseas AF bases to relieve airmen for duty with combat units and cut down high costs of supporting airmen and their families overseas (some 20,000 foreign employes are expected to be placed on AF payrolls in the first go-around of this plan);

- **Reshuffling** of the Air ROTC program, placing increased emphasis on pilot training and AF ability to hold onto the most qualified graduates for career service;

- **Early release** of enlisted airmen whose talents become unnecessary because of an excess in certain areas, replacing them with men with abilities in critical areas;

- **Reducing** use of people engaged in support activities such as air police, food services, and AF bands.

Budgetary policies and financial management also fall in White's bailiwick. Here his position before his AF appointment on February 6, 1953, comes into play. He was a New York lawyer with Cadwalader, Wickersham & Taft, a partner in the firm, specializing in corporation and financial law.

White also heads another AF committee, called the Financial Policies Committee, which keeps up to the minute on all AF programming. The committee meets each week to analyze specific USAF programs. Its primary interest is to determine that the programs are being met.

If it is discovered that a program is too large, money is taken out of it and placed in the AF reserve. It is then either reprogrammed to another vital activity or carried over until the following year. Money taken from such projects has totaled \$1.7 billion to date.

A most important device now being created is the new Monetary Property Accounting System, designed to put a dollar value on everything in the AF. In the past, the AF had difficulty in determining exactly what was needed because it did not know precisely what it had on hand. Now the new system is placing a price tag on everything. Such information will provide the data required in making proper adjustments.

The system was service tested at San Bernardino, Calif., AF Depot. Dollar reports of receipts, shipments, and inventory levels at this depot showed that five out of 21 property classes required attention. In one sub-property class alone, it was found possible to dispose of 1168 items worth \$1,200,000; in another, 1400 items worth \$800,000. These two accounting actions provided some 5000 square feet of additional warehouse space, it was estimated.

The Monetary Property Accounting System will also be set up at AF bases. It is now being tested at Langley AFB, Va., and will be installed at all bases by next April.

The system is designed to provide immediate answers to the following questions at any given time: Is an installation overstocked or understocked? Are its facilities concentrating on proper items? Are prices up to date? Are items being identified and categorized as rapidly as they arrive? Are payments being made properly? What is the overall stock position? Are stock distributions proper? Are all installations complying with stock counting requirements? How many people and how much warehouse space is needed? How much money is needed for the AF buying program?

The property accounting system pinpoints high dollar value items, those which may be causing major variances from desired inventory requirements. It uncovers critical points where remedies

are needed. Its continuing objective is to tie in expenditures and appropriations with the input of property, maintaining as close a balance as possible in order to cut down excessively high inventories.

Also in line with White's fiscal management is the AF Cost Accounting System. Under this system it is possible to determine quickly the cost of running a depot, a squadron of aircraft, or anything for which the AF has to foot the bills. It covers all types of costs, placing a charge on everything from the cost of a bolt to the labor required to place it in its proper position in an airframe.

The system is now being tested at the Strategic Air Command, Tactical Air Command, and Air Defense Command on a test basis. It should be in use AF-wide by the end of June, 1955.

White's work is highly coordinated and dependent on the Deputy Chief of Staff, Comptroller; Deputy Chief of Staff, Personnel; and Deputy Chief of Staff, Operations (Directorate of Manpower and Organization).

The AF's success in getting more for less during 1953 was well underlined by Defense Secretary Wilson, who said, "The Air Force has recently been making good progress in getting its house in order. They have done a lot of things in the Air Force to improve and balance their program. When they realized something wasn't right, they found ways to fix it and promptly took the necessary action." • • •

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## News Briefs

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The fact that Convair is converting a number of RB-36 bombers into carriers for Republic F-84F Thunderstreaks has been confirmed by the Air Force. A parasite flight of this sort was demonstrated at the Dayton air show.

Additional mail pay in the amount of \$137,489 has been proposed for Los Angeles Airways' helicopter service by the Civil Aeronautics Board. LAA total for the 18-month period ended September 30, 1953 would thus become \$1.02 million.

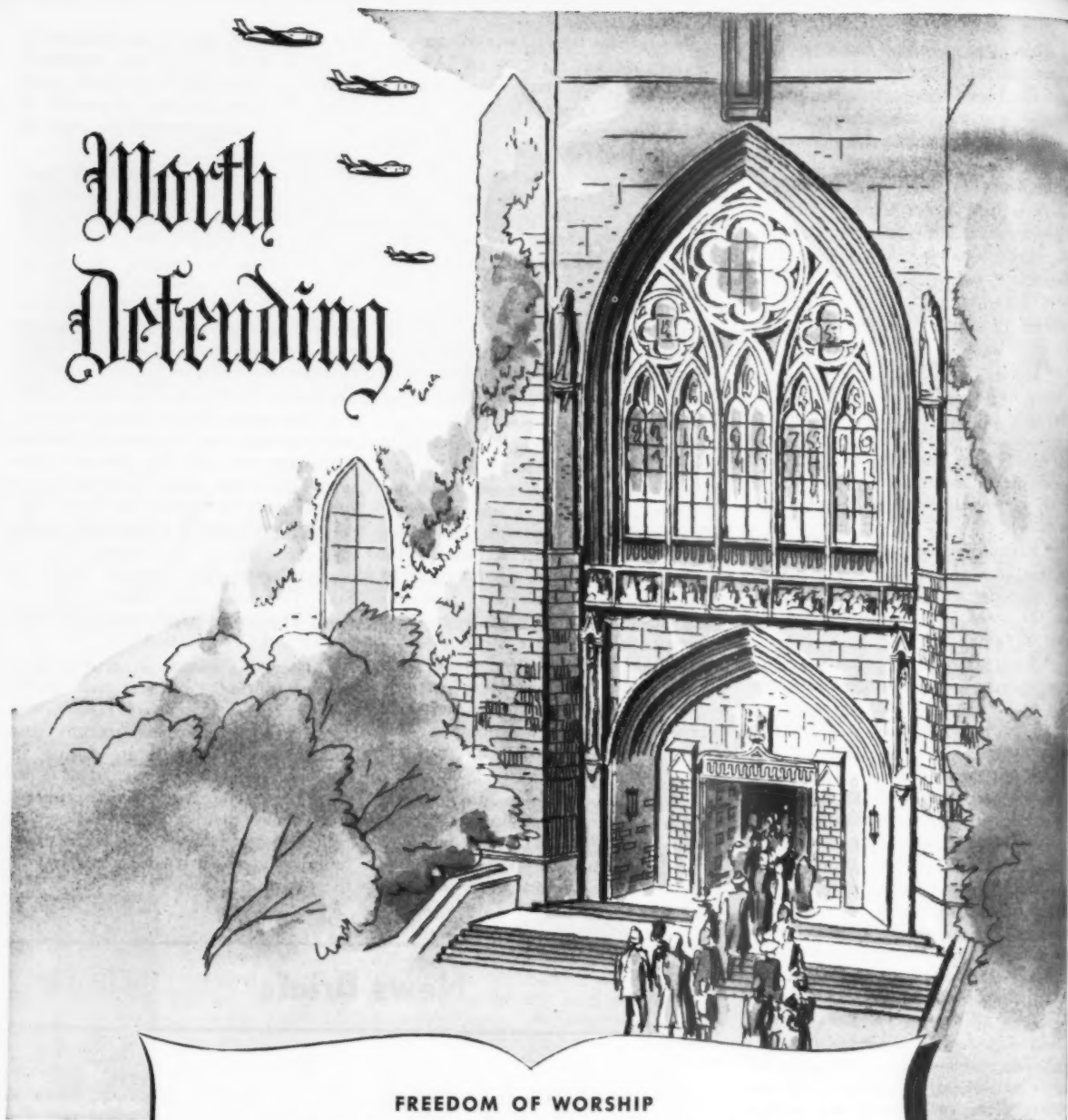
A "flexible" policy on speed records and their announcement has been adopted by the USAF. General policy will be to withhold information on speed and altitude attempts, but exceptions will be made from time to time.

First production North American FJ-3 was flown at Columbus, Ohio, in December. Pilot was Bill Ingram, who had previously flown the prototype.

Charles F. Willis, Jr., aide to Presidential Assistant Sherman Adams, and the only member of the executive staff with an aviation background, has relinquished no aviation duties. Commenting on rumors to the contrary, Willis observed that he has not only his former duties, but additional responsibilities as well.

Deadline by which C-46's are required to conform to transport aircraft category requirements has been extended to March 31. Previous deadline was January 1.

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## CAA Reports on 1953 Aviation Progress

CAA Administrator Fred B. Lee reported gains in size, safety, and scope of civil aviation in his year end report. Scheduled domestic and international revenue passengers increased 17%, and scheduled carrier passenger fatalities dropped from 0.9 per 100 million passenger-miles to 0.5.

While production of five-place or larger aircraft dropped 34%, one- and two-place plane production increased 31%.



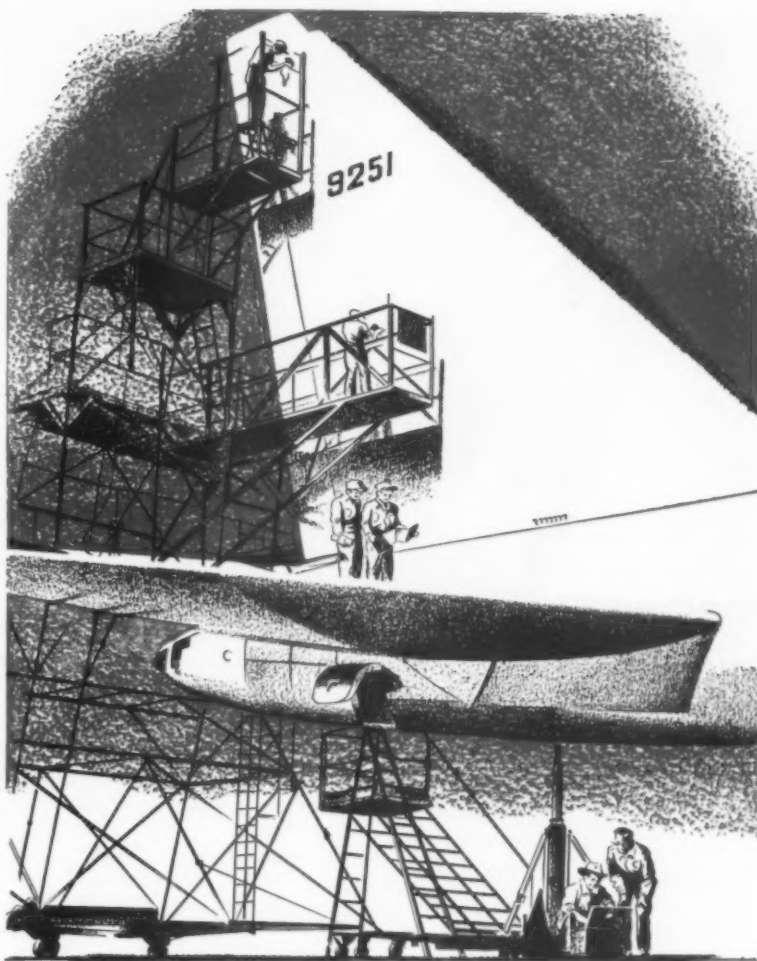
SWISSAIR flight captain Schmid and engineer Isenschmid examine Peravia Motograph being introduced in United States.

## New Firm Enters Airborne Recording

Peravia Instruments, Ltd., of Berne, Switzerland, has entered its bid for the U. S. market in airborne recording instruments, announcing sales and service representation here through The Matisa Equipment Corp. of Chicago.

The Peravia Company produces tachometers, tachographs, altimeters, barographs, accelerometers and accelero-graphs, turn indicators and radio sound-balloon equipment. Among past U. S. purchases was a recent North American Aviation order for exact barographs with altitude scales up to 65,000 feet to be used in special high altitude test work.

Prominent recent development of Peravia is the Motograph, an airborne unit which is mounted in the engine nacelle and continuously plots engine rpm, manifold pressure, and altitude against an engine-operating-time scale. The unit has been used by Swissair on Douglas DC-3, DC-6, and Convair 240 aircraft and has played a key role in the development of new control procedures for ground operation of engines to reduce mechanical difficulties.



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## Proposed C-54 and C-46 Routes



SUGGESTED AIRLIFT would link military facilities in the U. S.

## Air Logistics Plan Proposed to USAF

Transport Air Group suggests linking military depots and POE's with fixed route pattern.

**A** PLAN for a civil air logistics system which would link all of the major military air depots and ports of aerial embarkation in the U. S. on a daily scheduled basis has been proposed to the Pentagon by the Transport Air Group, Inc.

TAG's staff, headed by L. R. Hackney, has submitted a "preliminary study" of a possible system on behalf of its five-airline membership to Brig. Gen. J. P. Doyle, USAF chief of transportation, and to Brig. Gen. J. L. Riley, chief of transportation in the Air Materiel Command.

In transmitting its proposal to the military, TAG admits full realization that "certain important policy decisions" relative to the overall logistics system are still pending. Stand taken by TAG, however, is that the Defense Department activate a basic network of air transport routes immediately, rather than await the eventual decision on the entire logistic system.

The coast-to-coast schedule pattern suggested by TAG would involve the use of 10 Douglas C-54's and 11 Curtiss C-46's over a fixed route pattern (see map). It would offer an airlift capacity of 311,150 ton-miles per day, six days a week.

Another phase of the program would include a flexible route pattern to permit airlifting engines or spare parts from the engine builder directly to an aircraft manufacturer's plant or to an Air Force operational base. Sub-

sequent stages would link aeronautical manufacturing centers with military depots, and extend the entire logistics system structure beyond the ports of aerial embarkation over international routes.

As regards aircraft to support the logistics system, TAG points out that they could be made available almost immediately. Twenty-five planes, both

### Possible Routes

Hub of military air logistics system suggested by Transport Air Group, Inc. is Tinker AFB, Oklahoma City engine repair depot. Routes include:

Douglas C-54	
Terminals	Miles
Tacoma-San Bernardino	946
Tinker AFB-Tacoma	1519
Tinker AFB-Travis AFB	1339
Tinker AFB-Westover AFB	1415
Tinker AFB-W. Palm Beach	1206
Total Route Mileage	6425
Average Stage Length	1285

Curtis C-46	
Tacoma-Sacramento	600
Sacramento-San Bernardino	387
Tinker AFB-Hill AFB	878
Tinker AFB-San Antonio	421
Tinker AFB-Mobile	640
Tinker AFB-Scott AFB	459
Scott AFB-Dayton	332
Dayton-Olmsted AFB	389
Olmsted AFB-Westover AFB	257
Total Route Mileage	4363
Average Stage Length	485



C-54's and C-46's from among the 88 owned or leased by its members, could be supplied within 10 days. Should the program be expanded, TAG says its membership has the capability of operating at least another 25 leased or USAF-furnished transports with the same short notice.

TAG lists its member's aircraft either owned or leased at 38 C-54's, 48 C-46's, and 2 DC-6A's. Maintenance facilities to support the project are California Eastern Airways base at Oakland; The Flying Tiger Line at Westchester, N. Y. and Burbank; Seaboard & Western at Idlewild and Los Angeles; Slick Airways at Burbank and San Antonio; and Transocean at Oakland, Bradley Field, and Seattle.

Operating costs eyed by the airfreight group are at least equal to and possibly lower than the 10¢ to 12¢ per ton-mile reported for the present Navy Quicktrans operation of the Flying Tiger Line and other chartered cargo routes now serving the military. In any event, TAG maintains that these costs would be significantly lower than the present published tariffs of the airfreight carriers, which amount to about 19¢ per ton-mile.

One major factor seen in reducing these tariffs is the potential that the operation could be conducted solely between military bases where airport facilities, handling equipment, and labor are furnished. One of the specific assumptions made by TAG in its proposal to the USAF is that these services would be supplied by the military and that the carriers would operate the airplanes and provide the required maintenance and crews.

Another cause for early establishment of a military air cargo system, the carriers assert, is that it would guarantee the capability of the proposed Civil Reserve Air Fleet (CRAF) operation in event of an emergency. The argument is that despite the admitted importance of the CRAF plan, reduced air transport business in the U. S. has already led to the sale of CRAF aircraft by TAG members to foreign flag carriers.

In most respects the logistics system proposed by TAG is not new. In fact many similar projects, such as the Tunner study and numerous others by the Air Materiel Command, the USAF staff, and various aircraft manufacturers, have been conducted in the past. What is significant is that this is the first instance where a group of operating carriers have come forth with their own plan of such a magnitude—one that has the potential of a 100 million ton-mile annual business. . . .



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# Interview

With



**Leigh Fisher**

**Leigh Fisher and Associates**

## How Can an Airport Make Money?

**Leigh Fisher**, head of Leigh Fisher & Associates of South Bend, Ind., in 1946 organized his company, which since then has specialized in airport financial and administrative problems, along with preliminary planning necessary for sound financing and operation of existing and proposed airport improvements. He has completed to date about 60 airport projects for both public and private clients.

Two currently outstanding projects which were guided by the firm are the new Toledo Express Airport, first postwar airline airport constructed without Federal aid; and Buffalo Municipal Airport, which was brought from a net loss of over \$100,000 a year to a net profit of more than \$150,000 within a two year period by cost control and progressive business management.

Other projects include Milwaukee, Portland, New Orleans, Evansville, Wichita, Anchorage, Paducah, Gary, Johnstown, and Hartford, to name just a few.

Fisher attended the Colorado School of Mines and Northwestern University prior to serving in the Air Force during World War II. After the war, the American Association of Airport Executives, in which he is an Honorary Life Member, sponsored him in airport financial management training at the University of Texas.

**Q.** In your role as an airport financial consultant, what have you found to be the reaction to Federal aid-less fiscal period?

**A.** The reaction has been mixed. To those who are competent in the field there seems to be no problem in developing airports without Federal aid so far as civil facilities are required. When military facilities are required on airports there is going to have to be some manner of compensation for facilities used by the military alone.

In the vast majority of scheduled airline airports with any degree of traffic whatsoever, and where the facilities are solely for civil aviation use, it is possible to do without Federal aid.

**Q.** If there is Federal aid in the future, what form should it take?

**A.** The Federal aid should be given on an individual project basis rather than an arbitrary percentage or allocation apportioned among the states.

We have had the United States set up on a regional basis, with the CAA regions regrouped into districts. The decision on projects, whether or not they are justifiable has been at district and regional level. There has been no uniformity in determination of need, despite some statistical attempt on the part of the CAA Washington planning staff.

The most acceptable method would be to have the burden of proof placed upon the sponsor of the project rather than have the CAA promote the project.

**Q.** What financial alternatives do you believe the smaller airports have, if there isn't any Federal aid?

**A.** You've brought up a problem which as yet has no sound answer, either from the Federal, state, or local viewpoints. When an airport is so small as to be marginal in its scheduled airline traffic-generating ability, the problem of finance, locally or Federally, is questionable. Without Federal aid the smaller of these airports would find it almost impossible to do any revenue bond financing or self-liquidating of bond issues. They would have the alternative of investigating more economic types of airport construction.

It is possible at certain locations to develop a scheduled airline airport for half the cost usually necessary under a Federally sponsored 50% FAAP project.

**Q.** Do you have a specific example of that?

**A.** Toledo, a middle-to-small-sized airline airport, in 1951 had approximately 90,000 passengers enplaned and deplaned. They were faced with an existing airport which was wholly obsolete. The runways were unsatisfactory for new types of equipment, except with substantially restricted load factors, and the proximity of railroad tracks, marshaling yards, major highways, and other facilities made expansion impossible. The electorate of Toledo approved \$1½ million in bonds if 50% Federal aid were made available to the project.

In the absence of Federal aid, we considered the project to recast the entire basis. Airlines were conferred with at great length to determine the exact extent of need, rather than use arbitrary bases of averages or statistics. When the financial responsibility was divided between scheduled and non-scheduled airline users, corporate aircraft users, and others, it was found that with moderate increases in charges the airport could be financed without Federal aid.

## 'User charges should be limited to landing facilities'

Using standard construction methods, not requiring the CAA project approval and related paper work, the project was developed at a price of \$3½ million. If the project had been an FAAP project it would have cost approximately \$5 million. Lack of Federal aid did not appreciably affect the City of Toledo's portion of the cost.

### Q. How would you attract private financing?

A. First, you must establish your own organization at the airport level on a basis which can attract private financing. Under present municipal administration practice—not necessarily the law—officials seem to fear they are giving favors to private capital, rather than having favors given to them, when they seek private capital for airports.

Under present lease practices, private investment finds it difficult, if not impossible, to provide improvements on public airports. Short term leases, cancellation clauses, lack of definite responsibilities, questions on taxes, insurance, type of buildings required—all of these have to be resolved.

### State Financing

#### Q. What part do you feel the states should play in financing of airports?

A. They should restrict themselves to non-scheduled airports, airports which serve general aviation. Scheduled airline airports should not be subjected to state control. It brings up political and development problems that have been wasteful and cannot be properly dealt with by the users.

#### Q. How would you divide up the financial responsibility for development and maintenance among the municipalities, users, and private operators?

A. The only uniformly applicable common denominator is use as determined by weight. Even with the weight basis you get certain inequities between users, but they are less on a weight basis than with any other common unit.

#### Q. Do you think airports and/or their concessions, restaurants, and shops within the terminal building area should be taxed by the counties and/or municipalities?

A. Airports built during the war by the Federal government and those somewhat in excess of present needs would have to bear an excessively high tax burden if appraised conventionally. The aviation business should be generally equal to all other business, subject to the same taxes.

But the taxes, because of the historically uncoordinated planning and construction of airports, should be based upon a negotiated amount rather than general appraisal and taxation practices.

#### Q. What have you found to be the most lucrative concessions in the terminal building?

A. Speaking of the smaller sized or average sized airports, that generate less than one-fourth of a million passengers a year, liquor service, limited food service, vending machines, display cases, telephones, telegrams, and coin-operated rest room facilities seem to guarantee a net profit. When food service facilities are developed on a "competitive basis" opportunities for loss are prevalent.

If you expand that question to include the terminal area, parking lots, whether coin-operated meters or concession-operated, are always profitable; limousine, taxicab,

and ground transportation concessions, auto rental concessions, always generate net profit.

### Q. What concessions are a drag?

A. Primarily food service concessions because of the excessive amount of space required for kitchen areas, storage areas, receiving truck docks, excessively large dining rooms that can only be operated during limited hours, etc. Facilities of that type usually do not pay their own way except in airports with traffic greater than one-quarter of a million passengers a year.

### Q. Various authorities have expressed the opinion that airports are over-financed and that planning has exceeded the need. Would you comment on this?

A. That is very true. The WPA funds, DLA funds, the Federal aid airports program, the wishful thinking of many people (including those boards, commissions, and advisory bodies which engage in airport planning) have promoted excessive building. Currently more responsible airport planning is being undertaken. The present nebulous state of Federal aid, in my opinion, has contributed to more realistic airport planning.

### Q. How do you build the proper airport right from the start for profitable operation?

A. The first question is, "Who uses it?" Once the use has been determined, conferences with the prospective users can determine their specific requirements. Expansion provisions can be made in plan form, but actual construction should be limited to those facilities which are approved by the users. If only those facilities are constructed and prudently managed and maintained compensatory rates will not exceed reasonable rates today and self-supporting operation can be obtained.

### Q. Do you feel that a small community has a right to plan an airport that would attract airline service?

A. Any community east of the Mississippi River would be in a highly questionable position if they developed an airline airport today to attract carrier aircraft with the coming of rotary wing aircraft. It would probably be subject to an early obsolescence.

### Q. What yardstick should be considered in levying airport user charges?

A. Airport user charges should be limited to landing facilities only. Charges for terminal space, hangar rentals, and other facilities are separate considerations.

For landing area facilities the charges divide into two groups: scheduled airline and other than scheduled airline. For scheduled airline it seems only equitable that the charges be lumped into a single use charge. The charge should be based upon two elements: (1) cost of maintenance and operation, which we refer to as variable costs; and (2) the capital recovery, which is referred to as a fixed cost.

Variable costs should include prudent maintenance and operation costs. Fixed costs should include recovery of the sponsor's or owner's investment only, and this capital recovery should be restricted to the prudently required facilities. Capital recovery on the excessive facilities should not be included in the charge.

### Q. Should the military pay an airport user charge?



## Single runway: 'The soundest policy'

A. Those airports with military potential, and in which the military want to retain the recapture provision, should incorporate a definite division of original financial responsibility for improvements and maintenance costs. Where the Federal government does not feel any continuing military justification, airports should be completely released from recapture provision and similar proportionate maintenance charges.

**Q. Would you comment on the apparent restlessness on the part of airports operating under surplus property deeds?**

A. The provisions for transfer of military airports to civil governments were such that civil owners are completely blocked from any development within prudent financial operation. To improve matters it is not necessary for the Federal government completely to release these airports from recapture, only to agree to pay fair and reasonable payments during any period of use for facilities which have been built by private or by local government investment.

Contracts should also be modified to compensate the airport owner for any additional runway, taxiway, air field improvements, etc., made subsequent to the date of transfer.

In the national interest I cannot see where the Federal government can either completely release an airport from recapture or how it can retain the recapture provisions as they presently exist at the majority of these airports.

The majority of these airports were and are white elephants. Many facilities required for military use were not needed for civil operations. Conversion costs of these facilities by civil owners are often equal to the original investments of the Federal government. There must be some equitable adjustment made to offset this.

### Cost Consciousness

**Q. Why have some airports been able to get into the black while others are constantly showing deficits?**

A. Primarily the difference in management. Some airport managements are cost conscious; others are not. You find the same things in any business endeavor.

**Q. What's the solution to it?**

A. The airport governing bodies must consider airport operations as carefully as they would consider the operations of corporations they might control or serve. Often responsible local businessmen, when they take a position on an airport board, lose some of the business acumen that they normally exhibit. Political considerations become more important than business considerations.

The airport manager is 50% responsible. Statutory limitations, limitations on hiring and firing of airport personnel, municipal limitations, charters of municipal bodies, all tie the hands of airport managers. Some airport managers find ways to get around these limitations; others do not feel the risk is worthwhile. Those that take the risk are usually considered top managers.

**Q. How would you go about attracting businessmen into airport management?**

A. First, give them some degree of authority which they can exercise without constantly referring to municipal officials, unfamiliar with problems of business administration. Secondly, increased salaries would help somewhat.

Primarily you must be able to give authority commensurate with responsibility.

**Q. Would you comment on the proposal that if there is future Federal aid it should be limited to the construction of actual landing facilities?**

A. That is a very sound approach. Actually the landing area facilities are of national interest. Terminal building facilities, hangars, and related commercial facilities are purely a matter of local interest. Rental rates necessary to retire a terminal building would only have to be increased approximately 65¢ a square foot a year to compensate for the lack of Federal aid. This is not enough to cause any decrease in terminal building construction.

**Q. Do you favor public bond sales or do you feel it more advisable to just go after private investment?**

A. You need both. Under present concepts of airport regulation and financial operation private money cannot provide all airport facilities. Rights of eminent domain have never been granted to private corporations in the development of airports. You have air space zoning, condemnation, access roadways, utilities, and other problems for which you do not have permissive legislation. You will always require—until there has been some basic change in the legislative concept regarding airports—public funds to provide basic landing area and ground facilities.

The division of public and private capital is as follows: The runway, taxiway, aprons, and landing facilities, including the grounds therefor, are primarily public under present legislative concepts. Improvements around the perimeter of the airport for commercial operation are primarily private in nature. There are two phases of a single investment problem. Therefore, private investment cannot entirely replace municipal investment at this time.

**Q. Long range airport planning seems to be taking a back seat. Do you think that's wise?**

A. I think long range planning is coming in for a review on all parts. We have been in such a hurry during the postwar period that we haven't taken a close look at our industry objectively. The coming of helicopter transports is going to cause a profound change in airport planning criteria.

**Q. Is there any likelihood of the airlines and airports getting together to solve mutual problems of facilities and their financing?**

A. The recent curtailment of Federal aid has accelerated progress toward that end. Municipalities are beginning to look over the statement of profit and loss more carefully and deal with the carriers first and construction afterwards. In the past it has been just the reverse.

**Q. Is the single runway, as contrasted with the wind-rose airport, policy a sound one?**

A. It is the soundest policy that has been developed in airport financial planning historically. With the advent of the single runway policy, even when we find necessary modification for cross wind because of wind or traffic conditions, we are able to restrict the land area; to improve our taxiway circulation, and to give equal building area, all at cost savings up to 75%.

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## 'Certification should include . . . economic necessity'

costs so substantially that you can finance a new airport without Federal aid for the same user fees that it would require to maintain and operate the old wind-rose type airport.

**Q. What have you found to be the reaction to the current aviation administration in Washington?**

A. The industry has not had enough time to have any solid reaction to the present administration regarding aviation. The changes being made in the Federal aviation policy are a matter of feelers put out to the industry; if objections are too serious the proposed policy is amended.

**Q. What do you think CAA's role should be?**

A. If there is to be Federal airport aid, CAA should receive from project sponsors documented requests, consider them from an equitable viewpoint, from both national and local needs, and determine what assistance is required. CAA should also carry on continuous research regarding technical airport problems.

### Doolittle Report

**Q. What do you feel about the Doolittle report recommendation that the airports be certified by the Federal government?**

A. I agree with the certification of airports, similar to the franchisement of a public utility. There will have to be a separate body created, equal to or better than the CAB, to judge and determine the criteria of certification. I do not believe that a departmental bureau under the Federal government can render such decisions equitably. It's a matter of public hearings and determination of public necessity after the hearing of all parties involved, more a matter of public regulation of a semi-public utility.

Certification should include elements of economic necessity as well as safety. So many competitive airports are being developed throughout the country where one airport could adequately serve the air trade that net loss is forced on both. If there were economic certificates of convenience and necessity for airports, plus safety requirements and planning criteria, then we would have the basic answer to airport solvency as well as national security and safety.

**Q. Do you see the heliport situation growing in a more organized manner than did the general airports?**

A. It can if excessive enthusiasm is not generated or promoted by self-seeking people in the aviation industry—if the program is developed as an organized, slowly evolving program.

Since heliports will not require the vast land areas nor the substantial investments of conventional airports, enabling legislation to permit private investment to organize and provide heliports would provide the soundest answer nationally. The investment per unit of transportation would be so low that heliports should prove attractive to private investors. If enabling legislation such as condemnation of air space, condemnation of site, and other permissive legislation is enacted, you will get a privately developed heliport without all the confusion of conventional airport development.

**Q. Do you feel that heliport planning should be getting under way immediately?**

A. Research for heliport planning should be getting under way immediately. Responsible officials of helicopter manufacturers and operators simply do not agree as to the sizes, dimensions, and requirements of heliports. There is no one competent to come out and make a flat statement or recommendation as to the design requirements of a heliport. Unless intelligent heliport standards are established soon, the identical obsolescence we found in current "wind-rose airports" can be contemplated for heliports.

**Q. Are there any significant engineering developments which promise to improve airport construction or lower costs?**

A. Even if substantially improved engineering research developed a panacea it could not be applied in the majority of cases, since the fixed municipal investment is already made.

In the terminal area, mechanical docking and handling of aircraft has some possibility. The Whiting Corporation has developed a mechanical docking device which they call the Loadair. This device offers some promise of reducing vehicular traffic on aprons and permitting mechanization of baggage, cargo, and aircraft service elements. It may reduce terminal area costs through elimination of paving and mechanization of service features.

It is in the service or allied segments of the airport industry in which the most progress will be made in reducing costs and increasing capacities in the future.

**Q. Why is there so much difficulty in financing new hangar construction?**

A. At airports with no available hangars, hangar financing seems to be much easier because there is no problem of differential in rental rate. At airports where some hangars were financed by WPA, or by other low cost means, and additional higher capacity is required, you get into the problem of differential prices for hangar rentals caused by the difference of source of finance.

We advise the net leasing of all hangars to private organizations for restoration, rehabilitation, or redevelopment, so that the rental rates of hangars would be competitive.

**Q. Have you found a trend among municipalities to turn the airport user charges problems over to the public utilities commissions?**

A. Airports are basically a public utility. Many of their characteristics of investment follow the same pattern of a public utility—a high capital investment, a low ratio of income to investment, and a substantially decreasing cost per increased unit of use. Municipalities that cannot satisfactorily negotiate with airport users many times advocate the transfer of responsibility of user charge determination to public utility commissions.

Airport authorities that can satisfactorily negotiate want to retain the prerogatives of charge calculation and renegotiation. There appears to be no unanimity of opinion on the subject either in the airport industry or in the airlines.

Municipalities will be seriously injured if they continue to calculate their charges on imprudent bases. Some municipalities include Federal investments as a recoverable element of user charges; others are uneconomical in their personnel organization and their purchasing.

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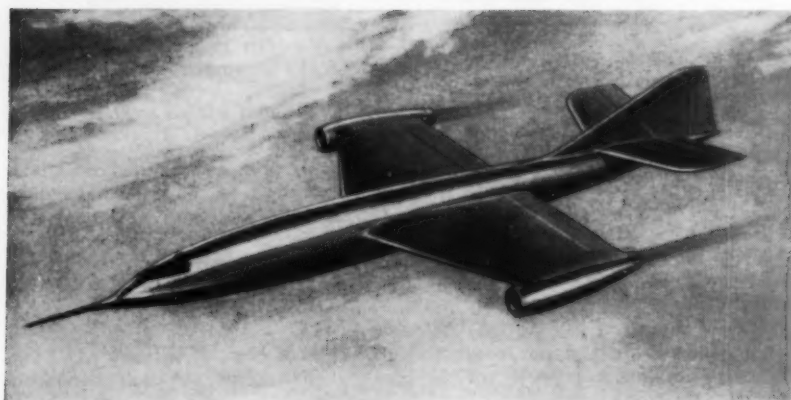
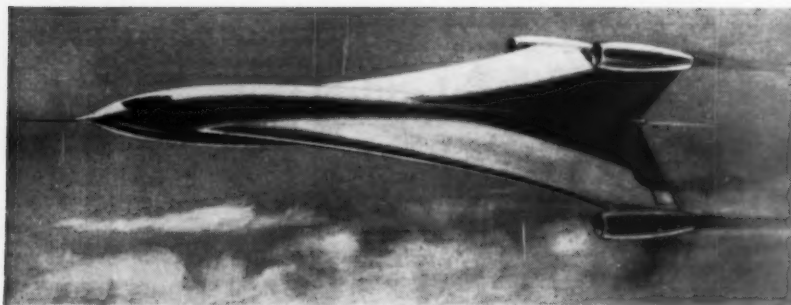
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MACH 2 DELTA (top) envisaged by David Keith-Lucas, chief designer of Short Bros. and Harland, would have a crescent leading edge. Mach 2 "straight" wing might look like bottom picture.

## BEA Engineer Hits British Workmanship

Production conference brings criticism of aircraft quality from airline's chief engineer.

**F**RANK SPEAKING characterized a conference on "Problems of Aircraft Production" organized by the British Institution of Production Engineers and held at Southampton University last month.

Attendance was unusually good and representative—there were some 200 technicians present, including leading aircraft design personalities.

Highlight of the conference proved to be a paper on "User Problems Affecting the Industry" by B. S. Shenstone, Canadian-born chief engineer of British European Airways, in which he voiced general criticisms of the finish and workmanship of British aircraft.

Shenstone pleaded for aircraft in which each component would have the same ultimate life—40,000 hours, or at least 30,000. Airline aircraft require a special standard of interchangeability, since in their long lives components may move around the whole fleet during progressive overhauls.

Consistency of hour-life between

overhauls is equally important to avoid unscheduled changes. Aerodynamic dissimilarity in, for instance, control surfaces, necessitating test flights after changing, is another trouble. Doors, brackets, locks, catches, hinges are parts that need to be sturdier than the adjacent airframe if they are to have a long life. He said that his experience was that there is more consistency in smaller articles of American manufacture than in British ones.

In the United Kingdom, Shenstone said, the average finish given to an aircraft is far inferior to that of the average American aircraft. The continued use of non-flush riveting on British transports makes a bad impression on passengers and prospective buyers.

Perhaps one of the worst aspects of workmanship in the U.K. at present is electrical wiring, he said. Within the past two months, he revealed, an operator who had bought new British transports had to strip them of all their

electrical wiring and renew it before the aircraft could be put into operation.

Replying to Shenstone, the Society of British Aircraft Constructors said "wholesale criticism of British aircraft and the men who make them comes strangely from BEA who has so recently published such satisfactory financial results from the operation of its new British aircraft."

British operators and manufacturers also issued statements that all was well. Vickers-Armstrongs, for example, stated "with the authority of BEA" that the airline is fully satisfied with its Viscounts as regards both finish and workmanship.

Speaking for the military user, Air Marshal Sir R. Owen Jones, controller of engineering and equipment at the Air Ministry, said that ordering a new type "off the drawing board" was a fine concept, and he would never advocate a return to the old procedure of buying an aircraft and improving it before buying it in quantity. Adding two or three years to a plane's development life in these dangerous days is suicidal.

### Load for the Services

But Jones pointed out that the new method of ordering throws an enormous load of work onto the service in respect to modifications, the need for which is not apparent from the drawings but becomes obvious as soon as production and flying begins.

Air Marshal Jones said that the RAF is doing its best to discover what needs doing to a new aircraft ordered "off the drawing board." In addition to the trials at the Boscombe Down experimental establishment, the RAF now conducts, on its first deliveries, intensive flying trials during which 1000 hours of flying on eight aircraft is obtained in the shortest possible time.

Urging the development of new riveting techniques, he said that the RAF is getting an inordinate rise in the number of loose and broken rivets in aircraft.

Outstanding points made by other speakers at the production conference were:

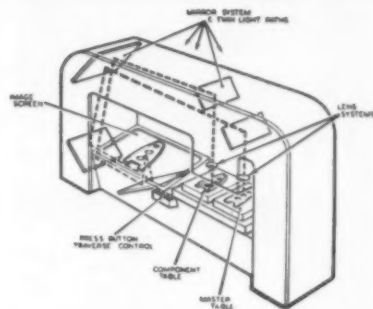
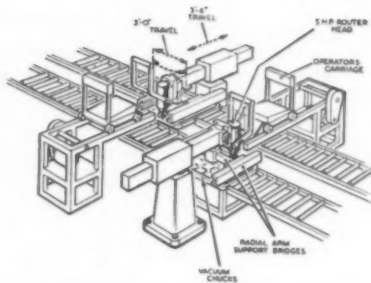
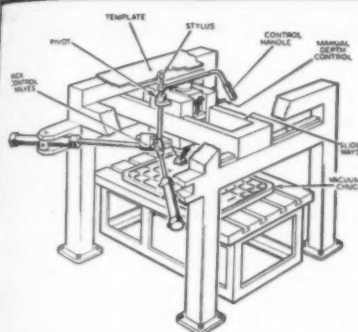
- The age of fabricated sheet metal airframes is passing in favor of machined parts with the minimum of joints.

- There must be capital investment in forging presses and large skin millers;

- Titanium supply is lamentable.

Discussing "The Trend of Design," David Keith-Lucas, Short's chief designer, made his points in this sequence. Diversity of shape in high-speed designs





VICKERS-SUPERMARINE has adapted routers for use in skin milling (left). The router pocket milling machine (center) is servo-operated. Optical comparison machine (right) is used by Vickers-Supermarine for inspection of larger airframe parts.

for the same job (for example, the Javelin, DH 110 and Victor/Vulcan) is due to lack of knowledge in new fields. Mach 2 will bring three per cent or four per cent straight wings with tip-pod engines and fuel and landing gear in fuselage.

Alternative is 80° delta, still with tip-pod engines but with considerable fuel space in wings, which may suffer lift-drag penalty because of supersonic right-angle lift vector necessitating high incidence. Duct losses in large chord delta force pod mounting of power units.

Integrally stiffened skins save 25% weight, 39% cost (one U. S. firm, Keith-Lucas said, gives \$1.67 per pound against \$6 to \$7 for fabricated skins). Difficulties are cracking and distortion in high-strength light alloys and doubts exist about material consistency in slab form. Multiple webs could replace ribs as well as stiffeners.

"Sandwich" still has an important place. Redux-bonded sandwich, using stable Y and U sections with two attached flanges, instead of the familiar Z, has been successful on the Comet. Aluminium honeycomb is even better where end load is low (such as in low aspect ratio delta), but reduces fuel stowage volume. Chordwise corrugations, as on the Britannia leading edge, are good.

Stiffness is today's design criterion but, Keith-Lucas asked, why not let aeroelastic distortion work for you on the judo principle, as in the isoclinic Sherpa?

The U. S. is using 280,000 psi steel, which would be excellent and resists heat and fatigue. Titanium is a great promise—but is almost an unknown element. Durestos and glass plastics have relatively poor strength but gain by being molded without joints. The most recognizable trend today is the reduction of joints by machined, forged, or molded structures.

In the discussion, printed wiring, taper-rolled skins with Reduxed stiffeners, and hot-formed magnesium zirconium panels for leading edges and fuselages (such as for shear loads) were suggestions for improving production.

Alan Vines, production manager for Fairey Aviation, sounded a realistic note when he said that the industry has done nothing but talk about forged skins for two years while the U. S. made them. He urged that money be found for production research.

A paper by George Dowty, head of Dowty Equipment Ltd., outlined the manufacture of "tailormade" landing gear units and standard precision jet fuel system parts. Machining waste on forged legs was 90% on prototypes and 60% on production, compared with 9% for castings. Fantastically fine limits are called for today, Dowty observed.

### Fabricated Skins Going

S. P. Woodley, superintendent at Vickers-Supermarine, emphasized his belief that fabricated metal skins are on the way out (just as fabric went).

The trend is toward carving wings out of the solid in two halves, bolting them together and machine finishing all over.

The trend toward machined skins, and ribs and frames, indicates capital outlay of \$270,000 to \$420,000 for skin millers—but these may be for a passing phase only in design. The Germans, during World War II, were first to use large forging presses—after the armistice the U. S. got a 15,000-ton press, the Russians a 33,000-ton one. There is no large press in the U. K., nor is one projected to Woodley's knowledge. Britain needs a "close-to-limit" forging press to save machine time and waste—but cost will be about \$6,300,000.

Copy-machining is a most important development and with modern electronic feed control there is no reason why templates should not be replaced

by direct computation from tape-recorded data, Woodley said.

U. K. structural design calls for converging stiffeners, tapering skin gage, and pockets forming thickness reliefs to take local stresses, and no such machine exists, according to Woodley, even in the U. S. Vickers-Supermarine has achieved these results by adapting radial-arm routers, vertical and horizontal millers. Ingenious use of templates and vacuum tables allows large panels to be treated in sections.

The peak in manhours for fighter manufacture has been reached and the future will see a fall from the present 30,000-40,000, according to Woodley.

Discussion centered largely on taper-rolled heavy-gage light alloy, available in France, but not in the U. K. It was stated that the machine for rolling the wing skins of the Mystere was made in Switzerland in 18 months for half the cost of a U. S. skin miller. Rolled skins, several speakers noted, have the advantage of increased material strength and no machining stresses to be relieved by heat treatment.

Woodley said machined skin scrap was less than with fabricated metal parts and that in two years his firm would be using electronic machining from dimension data.

Winding up the production conference, Sir Frederick Handley Page made the following points:

- **Government help** is needed for capital equipment and forging presses.

- **More action** on titanium production is needed—there will not be much for three or four years, then only about one-fifth of requirements.

- **Production engineers** must be trained from the university—it is no more possible to "productionize" men than planes; the best results are by planning or educating from the start.

- **Draftsmen** should insist only on accuracy of pick-ups and leave jig evolution to shops. • • •

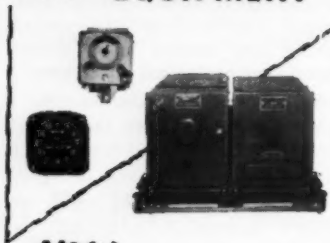
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## Effect of Post Office Department Proposals

On Rates of Ten Non-Subsidy Domestic Trunk Lines

(All rates are per ton-mile)

Carrier	Present	Proposed
"Big Four"	45¢	No change, except American, TWA, and United participating in "first-class-mail-by-air" experiments at 18.66¢ rate New York-Chicago and 20.04¢ Washington-Chicago.
Braniff	53¢	45¢ rate for 15.7% of mail volume; 54.49¢ for 89.3%. Also petition pending for subsidy mail pay.
Capital	53¢	45¢ rate for 75% of mail volume; 77¢ for 25%. Petition pending for change to apply 45¢ rate to 82% of volume and 80¢ rate to remaining 18%.
Delta	53¢	45¢ rate for 33.33% of mail volume; 57¢ for 66.67%.
National	53¢	Proposed for system-wide 45¢ rate.
Northwest	53¢	Proposed for domestic system-wide 45¢ rate.
Western	53¢	45¢ rate for 50% of mail volume; 61¢ rate for 50%.

## Mail Rate Problems Back in Limelight

Variety of rates, PO plans to award contracts to low-price carriers, disrupt rate structures.

By WILLIAM V. HENZEY

**T**HE TREND of recent years which saw a switch in emphasis from mail rates to commercial fares and rates, considered a milestone in commercial aviation's development, has been halted abruptly, largely by the activity of the Post Office Department under new Postmaster General Arthur E. Summerfield and Asst. PMG John C. Allen.

The areas in which the new PO is moving are numerous. The initial casualty was the once "black and white" service mail rate structure of the trunkline industry.

Now there are separate rates for air-mail and for surface mail moving by air, for portions of airmail volume moving on competitive routes and that moving on non-competitive segments, for holiday mail and for normal season mail, and, possibly in the future, for military APO-to-APO mail.

The multiplicity of rates now in effect or proposed does not constitute the end generally considered to be sought by the Post Office. Best guess of industry and Government rate experts is that Summerfield and Allen would like lower service rates without getting into a long drawn-out mail rate proceeding in the process.

To accomplish this end, the PO has threatened the certificated carriers with its support of non-mail airlines, including non-scheduled carriers, on the one hand, while dangling before the scheduled carriers the prospects of substantially greater mail volume through increased participation in the surface mail market.

Until the recent Christmas holiday season, the trunkline industry and a slightly-befuddled CAB were, outwardly at least, cooperating with each new Post Office proposal. A large share of the surface mail market is not to be sneezed at under any circumstances.

But the feeling persisted of Summerfield that "he's moving too fast in too many directions."

The first area of open disagreement came when CAB turned down exemption bids of the all-cargo carriers and the non-scheduled lines to participate in surface-mail-by-air experiments. Allen, in a letter to the Board, had supported the exemption bids, at least for the holiday season.

Then came the big split.

Allen had advised most of the domestic trunk carriers and Pan American that, beginning January 1, 1954, the PO would follow a policy of shipping mail via the carrier with the lowest service rate where carriers with different rates compete. For example, Eastern's service rate is 45¢ per ton-mile; National's 53¢. Between New York and Miami, therefore, the PO would favor Eastern.

This led to petitions of the six Group II domestic trunks operating under 53¢ rates for reduction to 45¢, at least over competitive segments. The 53¢ carriers were Braniff, Capital, Delta-C&S, National, Northwest, and Western. Only the Big Four—American, United, Eastern, and TWA—carried the mail for 45¢.

On Christmas Eve, CAB took these actions in answer to the new development:

AMERICAN AVIATION

• Ordered an industry-wide investigation to determine a "proper mail rate structure" and gave the PO and carriers 45 days to submit positions and counter-positions.

• Proposed splitting service rate applicable for the 53¢ carriers to apply 45¢ on competitive segments and necessarily higher rates on non-competitive routes to maintain a 53¢ average (see table).

• Proposed moving National and Northwest into Group I with the Big Four, so that 45¢ would apply over all of NAL's system and all domestic routes of NWA.

The lower rate for National and NWA would save the PO about \$425,000 annually.

But the action involving the other four carriers, as CAB framed it, would mean (1) no saving to the PO and (2) no appreciable change in estimated overall mail pay return of the carriers.

Further, though it sounds imposing, the new industry-wide investigation does not contemplate a change in the carriers' "take-home pay" but merely goes to the structure upon which total pay is based. The problem is "administrative" involving the question of "how will the money be paid" not "how much will be paid."

## Which PO Brief D'Ya Read?

In a recent controversial case on whether CAB could issue exemptions and fix mail rates for carriers not holding mail certificates, the Post Office took this stand in a brief:

• CAB has legal authority to issue exemptions permitting non-mail carriers to transport mail;

• Rates for mail carriage under exemptions may be set by the Board without regard to the "need" provisions of the Act.

In another case, also recent, involving back mail rates for Northern Consolidated Airlines, the Post Office took this official position:

• "The Board may fix mail rates only for holders of certificates."

• "... the Board has no authority to fix mail rates for a carrier whose only operating authority is derived from an exemption order."

There is one very likely outcome: a "multi-element" rate structure may be devised.

Though complicated-sounding, such a structure could be very simple. One plan now very much under consideration would have one over-all "line-haul"

rate for every carrier, to which could be added on a monthly, or even yearly, basis, a terminal charge for low-producing stations.

But, once again, the problem is "structural" and not one of the "level" of the rates. For any change in "take home pay," the PO, CAB, or the carriers may challenge the reasonableness of present rates. But this would lead to the complicated and lengthy proceeding the PO obviously wants to avoid.

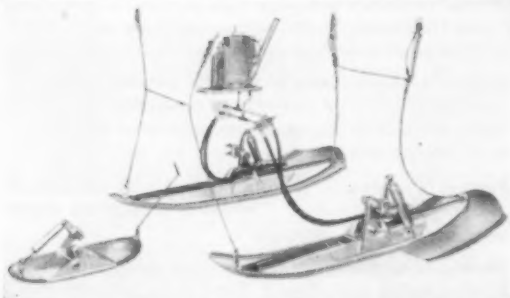
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## Ryan Receives New J47 and J65 Contracts

Ryan Aeronautical Co. has received new contracts to produce components for the General Electric J47 jet engine and afterburners for the Wright J65. G.E.'s \$1.3 million contract is for an item not previously produced by Ryan, although the San Diego firm has been building "hot" sections for the J47. Production for the G-E contract will last into 1955, and new tooling will be required.

The J65 afterburner award brings Ryan's production to six types of jet power plants. Other customers are G.E., Westinghouse, and Pratt & Whitney.

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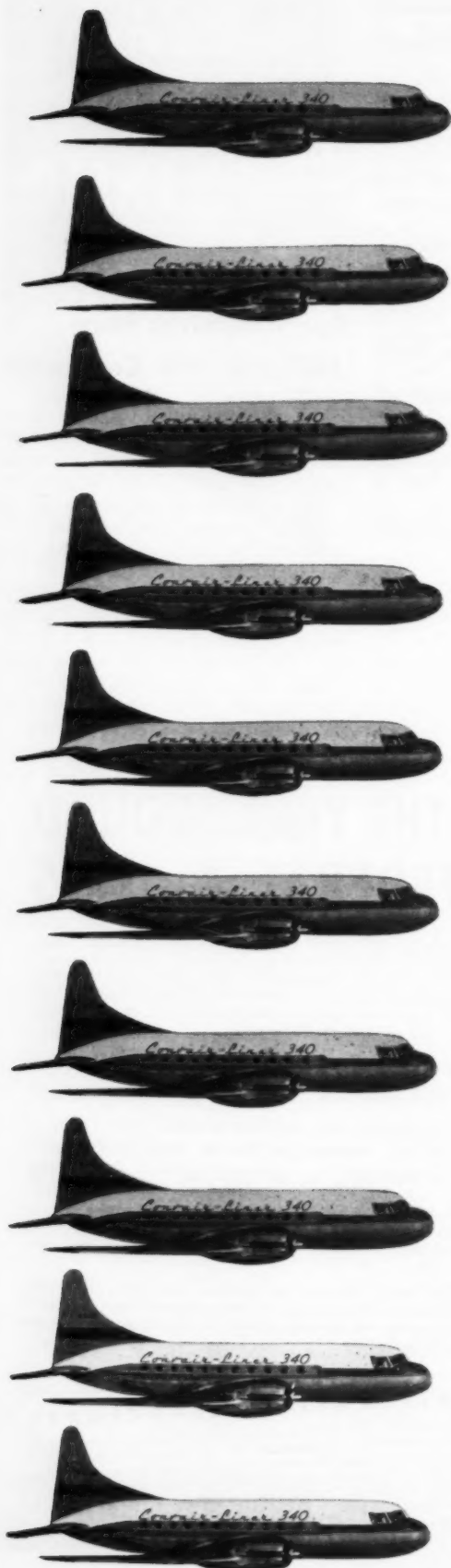
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PAL	KLM
Delta—C & S	

Skydrol: Reg. U. S. Pat. Off.





SPECIAL FOREMAN'S DESK helps organize job assignment. Job cards move from left to right side of stand as assignments are completed.

## AA Adopts Single Inspection Period

System holds time and manpower constant for all checks; assignments based on experience.

By JOSEPH S. MURPHY

TULSA, OKLA.—One of the sure signs that the day-to-day business of maintaining airline aircraft is fast emerging from its 20-year-long period of growing pains showed up here last month: American Airlines adopted a new system of "equalized" line maintenance inspections for its fleet of over 150 Douglas and Convair-built postwar transports.



Schroeder

The new approach does away with the long-accepted practice of using three types of maintenance inspections, often referred to as line, base, and major checks, or more recently described as Operation No. 1, 2, and 3 inspections.

The substitute is a well-planned system whereby a single inspection period is used, the airplane out-of-service time is held constant, and the manpower needed to inspect the airplane and make the repairs is "equalized," although the actual work accomplished may vary widely from one check to another.

The program at AA is being spearheaded by E. O. ("Ed") Schroeder who directs American's line maintenance organization from the company's Tulsa overhaul and supply depot. Schroeder was elevated to the post of assistant vice president of maintenance in 1952, in a

move that represented one of the few instances in U. S. airline history where the importance of aircraft line maintenance gained so high an organizational recognition.

Details of the system were worked out by inspection specialist Dean Young in the office of AA's director of standards and procedures. Assisting Young in the various stages of its development were the chief inspectors from regional offices in New York, Chicago, Ft. Worth, and Los Angeles.

Although the broad concept of the "equalized" check is not entirely new, the approach taken by American differs from versions adopted over the past several years by such major airlines as United, Trans World, and Pan American.

Although all four carriers arrive at a balanced workload for each inspection, the major difference lies in the method by which this balance is reached.

The reason AA swung to the "equalized" check concept were its many obvious advantages and virtually non-existent shortcomings. Favoring its adoption were these benefits:

- **Simplified aircraft routing**—By controlling the movement of a large fleet of aircraft with a single inspection period, the chances of realizing a higher average time between inspections are greatly enhanced. The exposure to mistakes in aircraft routing that always exists under a multiple inspection system disappears with the simplicity of the single-check operation.

- **Greater flexibility**—Elimination of the high manpower and time-consuming checks does away with the need for restricted routing of airplanes to a small list of base stations that could accommodate them. The reduced requirements of the equalized checks permits assignment of planes to more stations.

- **Improved efficiency**—It becomes possible to complete an inspection within a single workshift. The problems of crew turnover, with its paperwork and work accountability red tape, therefore disappear. The safety of operation is improved by avoiding the turnover of incomplete work. A carrier can localize responsibility in event of poor workmanship.

- **Better workload planning**—One average manhour requirement for an inspection simplifies planning of present and future manpower needs.

The approach used at American in developing the new system was to base the assignment of inspections on its current and past experience with the multiple check arrangement.

The operation No. 1 was a general visual inspection, the No. 2 a more detailed check, and the No. 3 a major operation. The latter included such heavier workload items as spark plug replacements and landing gear operational checks.

The former schedule called for an Operation No. 1 at 115-hour intervals on Convair 240's and 125 hours on Douglas DC-6 type aircraft. Operation No. 2 checks were scheduled at 185 and 225 hours, and Operation No. 3 at 345 and 425 hours on these airplanes, respectively.

### The First Move

The first move in the changeover was to examine each of these inspections job by job and to register both the amount of inspection needed in terms of manhours, and the repair work that was being generated. The airplane was divided into nine work areas made up of the powerplants as a single area, and eight airframe areas.

These areas included the cockpit and flight deck, cabin, nose, fuselage and lower compartments, tail, main landing gear, centerwing and nacelles, and outer wing. According to the proven needs of each of these areas, a light or heavy inspection was assigned.

This review also showed that an inspection interval of 125 hours could be used for all types of airplanes and that by intermixing the light and heavy checks over 12 inspections (for Convairs; 16 for DC-6's) between overhaul visits, a good workload balance could be achieved.

For example, the review showed

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Mr. Arthur Fecteau (left) is operating a fleet of Beavers from the bases of Fecteau Air Transport in the rugged mining areas of Northern Quebec.

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that each DC-6 Pratt & Whitney R-2800 engine inspection would require close to three inspector manhours every 125 hours, but that the amount of repair work would fluctuate from about 35 to 45 manhours. In order to offset the effect of variations as large as this from one check to another, heavy inspections in other areas of the airplane were strategically assigned, sometimes at the expense of starting them 125 hours earlier than they were actually due in order to maintain the all-important workload balance.

Another balancing factor made available to the planners by the flexibility of the system was that of assigning such service work as spark plug changes and a variety of lubrication jobs.

Where major operations of this type were inclined to fall due at the same interval, they too were assigned early. If an item required servicing at 400-hour periods, it could be started on the 1st, 2nd, or 3rd check out of overhaul, and then repeated at 400-hour intervals from then on.

## Paving the Way

AA paved the way for the new system earlier in the year by introducing inspection cards in place of the conventional inspection forms. Each inspection card carries a number that is coded to the area being inspected (100 series for powerplants, 200 for cabin interior service, 700 for inspection, etc.).

This card number further describes the nature of the job by assigning the first numbers in a series where areas must be "opened" for inspection, and latter numbers for "close up." Heavy checks are shown by even card numbers and light checks by odd numbers.

With these cards already in use and familiar to personnel conducting the inspections, it merely became necessary to establish a master check list for the card numbers to be assigned at the various check periods.

As an added standardization measure American adopted the new CAA definition of what constitutes a check, test, or inspection. A check is defined as the procedure necessary to determine the operating condition of a part by measurement, operation, or examination. Test means to prove the quality, efficiency, condition, response or action of parts by simulating actual operation. Inspection is defined as a thorough examination to fully determine the condition of the part.

The biggest advantage seen for the new inspection program, and one that may well pay the largest dividends, is the simplification of airplane routing. Under the multiple inspection arrangement, an operator is always plagued

## American's Record Cards

Form 744-700  
4-53-59  
Printed in U.S.A.

DC-6/6A/6B/7  
Periodic Checks  
COCKPIT AND FLIGHT DECK—HEAVY CHECK

CARD NO. 702

STATION	DATE	N	INSPECTOR
1. FLIGHT CONTROLS.			
2. POWER PLANT CONTROLS			
3. FUEL SYSTEM.			
4. FIRE EXTINGUISHER SYSTEMS.			
5. ELECTRICAL SYSTEM.			
6. OXYGEN SYSTEM.			
7. ANTI-ICER SYSTEM.			
8. INSTRUMENTS AND INSTALLATIONS.			
9. HYDRAULIC SYSTEM.			
10. AUTO PILOT SYSTEM. (DC-7 LONG RANGE ONLY)			
11. EMERGENCY EQUIPMENT.			
12. EQUIPMENT AND INSTALLATIONS.			
13. PRESSURIZATION AND AIR CONDITIONING SYSTEM.			
14. ADDITIONAL EMERGENCY EQUIPMENT ITEMS AND ADDITIONAL EQUIPMENT AND INSTALLATIONS. (DC-6A)			

Form 744-5  
4-53-59  
Printed in U.S.A.

DC-6/6A/6B/7  
Periodic Checks  
MASTER RECORD CARD—PERIODIC CHECK NO. 5

FOREMAN IS RESPONSIBLE FOR CHECKING THE NUMBER OF CARDS AGAINST THIS MASTER RECORD CARD, AC-  
COUNTING FOR ALL CARDS ASSIGNED THE CHECK. FOREMAN SIGNATURE

STATION	DATE	N								
PRE CHECK	80									
AREA 1—#1 Eng. DC-6/6A/6B	101	150						190	191	
AREA 1—#2 Eng. DC-6/6A/6B	101	150						190	191	
AREA 1—#3 Eng. DC-6/6A/6B	101	150						190	191	
AREA 1—#4 Eng. DC-6/6A/6B	101	150						190	191	
AREA 1—#1 Eng. DC-7	171	172	173	150	177			190	191	
AREA 1—#2 Eng. DC-7	171	172	173	150	177			190	191	
AREA 1—#3 Eng. DC-7	171	172	173	150	177			190	191	
AREA 1—#4 Eng. DC-7	171	172	173	150	177			190	191	
AREA 2—INTERIOR	201	202	211					290		
AREA 3—FUSELAGE & TAIL		311	312	314				390		
AREA 4—WING	401	402	411	412				490	492	
AREA 5—INST. & ELECT.		511	513	514	515					
AREA 6—LANDING GEAR & HYD.		611	612							
AREA 7—AIRCRAFT INSP.	702	703	705	708	709	711	713	715	720	
AREA 8—PILOT COMPLAINTS										
SPECIAL—FCD—EA—MA										
AREA 9—POST CHECK	FORM									

INDIVIDUAL job inspection cards (top) replace inspection forms in new AA system. Master record card (below) calls out work to be done on a given check.

with the fact that his ability to achieve a good utilization of the more costly Operation No. 2 and 3 inspections is directly keyed to his success in close scheduling of the lower cost Operation No. 1 checks.

If a No. 1 inspection is poorly routed and has to be accomplished early, another will fall due before the Operation No. 2, forcing that check to be done early. The effect then snowballs into a lower utilization of the high-cost Operation No. 3, all adding up to dollars lost in increased airplane operating costs.

But with the simplicity of the new check system, these problems become remote. Under American's present planning, the single 125-hour period becomes the sole routing control factor. The airplanes will actually be scheduled for inspection so that an average of 100 hours is achieved between checks, and the net result should bring a much more efficient operation, with less confusion, and most important, lower operating costs.

• • •

## Plesman, KLM Head, Dies at Age of 64

Dr. Albert Plesman, founder and president of KLM Royal Dutch Airlines, died in The Hague on December 31 at the age of 64. Cause of death was an abdominal arterial hemorrhage.

Plesman founded KLM in 1919 and built it into one of the world's leading airlines in its first 21 years. During World War II the carrier was reduced in size, with facilities destroyed and most of its equipment seized. In 1945, Plesman began rebuilding KLM. The reorganization was swift because of his forethought in constantly planning the reconstruction and reorganization of the carrier during the war, while a political prisoner and under house arrest. Today, KLM again ranks as one of the world's major airlines, with a fleet of 81 aircraft linking 102 cities in 66 countries.

Plesman also contributed extensively to the establishment and development of IATA. He served as president in 1949-1950.

HERE'S  
A NEW  
SLANT...

ON FLAT  
SPOTS...

ON  
AIRPLANE  
TIRES

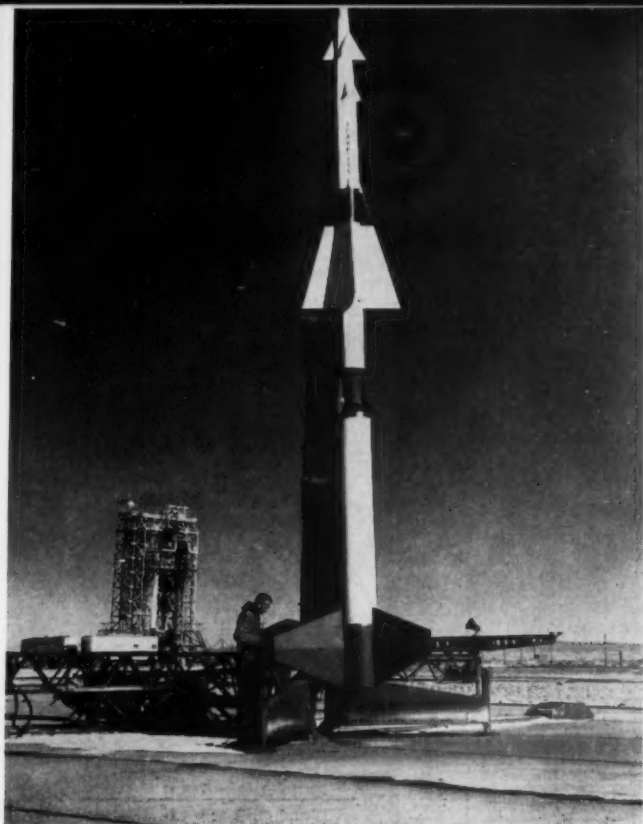
Hydro-Aire's HYDROL Anti-Skid Braking System has been proved in service to eliminate flat spots on tires. This cuts unscheduled tire changes to a minimum.



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**1. The observers** are radar sets spotted around Nike installations.

## Nike

*Army's supersonic antiaircraft missile, guided to target by radar, soon to be installed at Ft. George G. Meade, Maryland*

**2. The preparation** for a missile flight begins below, as the Nike is mounted on launching platform in horizontal position. At left, the platform in firing position, with gantry crane in background. Liquid-fueled booster rocket provides impetus.



**3. The attack** sends the Nike streaking toward target, in this case an obsolete bomber trailing smoke from one wing to help photographers track it. Missile is about 20 feet long.

**4. The end** comes for both missile and target plane. Warhead is so designed that it will explode only during flight.





# VISCOUNT

## Forecasts

### ARE NOW **FACTS** THAT COUNT

Within six months of its introduction, BEA announced the following figures for their Vickers Viscount operations:

<b>Total revenue earned</b>	<b>\$3,920,000.00</b>
<b>Total costs incurred*</b>	<b>\$2,814,000.00</b>
<b>Total profit earned</b>	<b>\$1,106,000.00</b>

Breakeven load factor  
for first six months to  
cover all costs:

**51%**

Breakeven load factor  
for first six months to  
cover direct operating  
costs:

**28.1%**

\* British    European  
Airways total costs in-  
clude all overheads  
and interest on capital.

For a total of 6,140 revenue hours this adds up to a profit of

**\$179.20 PER FLYING HOUR**

(Conversion from Sterling to dollars at 2.80 dollars to £)

Moreover this was achieved in the early months of the Viscount's operational service, when the utilisation was still at the low annual figure of 1560 hours.

## VICKERS VISCOUNT

FOUR ROLLS-ROYCE DART PROPELLER-TURBINE ENGINES

**On order in North America for Trans-Canada Air Lines**

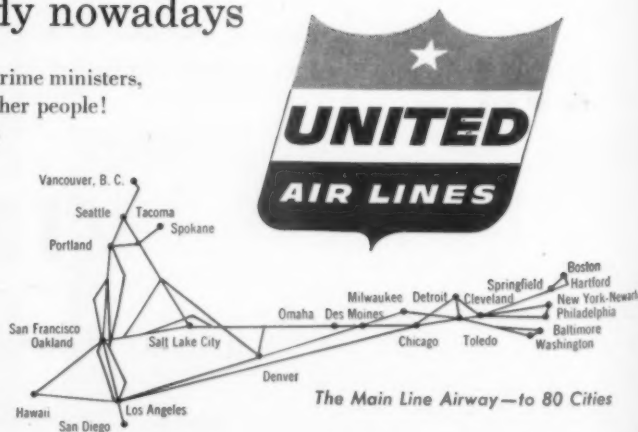
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Presidents (and future presidents like the one above), prime ministers, senators . . . they're all flying today. Plus millions of other people! The number of passengers carried by United Air Lines during the past year is greater than the combined population of Los Angeles, Boston and Milwaukee. This great and growing public acceptance . . . this record of routine day-in, day-out performance . . . is perhaps the best evidence of the service that is yours today on the nation's number one coast-to-coast airline! For reservations call or write United Air Lines or an Authorized Travel Agent.



Both **FIRST CLASS** and **AIR TOURIST** service. All flights feature seats 2 abreast on each side of a wide aisle.

## Babb Sets Up "Known Quality" System

New classifications offer precise definition of condition of new and used components.

THE PURCHASING AGENT, operator, and maintenance man will all get a break under a new quality control policy just adopted by The Babb Company, Inc. Under Babb's new program, announced this week by Babb president Edward Lund, every piece of equipment sold by this company will carry a certificate of quality clearly labeling the exact status of the item, distinguishing between factory new, used, used but overhauled, etc.



Lund

Although many people look on the "surplus" market as rapidly diminishing, it is in fact on the upswing, with a market of multi-million-dollar proportions in existence today. The continued upward trend of new parts prices and the tightening economy promise to swell the market even further.

Babb is introducing its quality control program in a unilateral action. It has set up its rigid classification systems to assure the buyer that he is getting exactly what he is paying for and the firm has made no attempt to force these standards on its competitors. However, since Babb is the largest dealer in surplus equipment, grossing as much as its four nearest competitors according to Babb figures, the rest of the industry may find it necessary or advisable to take similar steps.

Today it is difficult to tell what you buy when you order parts from the "surplus" dealer. There are a dozen different ways in which these dealers label the same unit. It may be labeled "New, still in factory boxes," and be 10-year-old equipment that can't possibly be used without overhaul. The only protection for the average purchaser is to know the dealer. This is often difficult for private pilots, corporations, and even airlines.

This is Babb's solution: The *known quality* program.

A "Babb Certificate of Quality" has been drawn up which establishes four major categories into which all parts sold by the company will be grouped. When a piece of equipment is advertised for sale it will be labeled as being in one of these groups:

• **Factory New**—indicates the unit "is of recent manufacture and has been

fabricated to the manufacturer's current standards and specifications. We will provide CAA certification to this effect."

• **Unused Certified**—indicates the unit "is not of recent manufacture but is in unused condition and in most instances is still packed in the original manufacturer's container from which it will be removed for our inspection and certification. We will provide CAA certification to this effect."

• **Unused Overhauled Certified**—indicates the "unit is in unused condition. However, due to long term storage it is necessary to replace seals, packings, bearings, etc. in order to return the unit to its original new and airworthy standard. We will provide CAA certification to this effect."

• **Used Overhauled Certified**—indicates the "unit has been completely disassembled and thoroughly overhauled to manufacturer's and CAA specifications. All mandatory modifications have been accomplished. We will provide CAA certification to this effect."

There are several other classifications, less used, which Babb will use in describing its products, including a catch-all "As is."

As the biggest dealer in "surplus" and used equipment, Lund is certain Babb is setting an example which others will follow and which should provide new policing standards for the industry. . . .

## DATA Plans Stockpiling Gas and Parts for CRAF

Annual report of the Joint House-Senate Committee on Defense Production indicates the Defense Air Transportation Administration has a program calling for \$25 million for worldwide stockpiling of spare parts and storage facilities for more than 50 million gallons of gasoline.

The program is designed to augment DATA's Civil Reserve Air Fleet plan, under which about 300 commercial airliners would be "mobilized" for military use in an emergency.

DATA officials say the \$25 million is an estimate of the airlines to support the CRAF planes and does not consider parts that the military would provide. USAF's Air Materiel Command is now screening requirements.



You can increase brake-life 32% by installing Hydro-Aire's HYTROL Anti-Skid Braking System. This has already been proved in service by major airlines.



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## Air Transportation-Vital Key to Victory

**T**HE NEXT WORLD WAR—if it cannot be prevented—will not be won by quantitative or even qualitative superiority of weapons or the men who use them in combat.

That war, in very large measure, will be won by the nations possessing, in advance of hostilities, the capability to transport men and materiel all over the world to support the logistic requirements of fighting forces.

To have on hand the capability to get what we need, where we want it, and *when* we want it, is imperative. A global air transportation system, capable of rapidly bringing combat forces and their support to any threatened point around the world, may spell the difference between final victory and final defeat.

There is nothing new about this concept. It is as old as the history of warfare; and it is as valid today as it was thousands of years ago. The air-atomic age has changed this concept in no way, except to emphasize its increasing importance.

### The Turning Point

It is not generally recognized by the public, or even by the Congress—though it is well understood by military planners—that the turning point of every war has hinged upon the problem of supplying the fighting forces with everything they need to drive on to victory, including reinforcements at critical points in a war theater.

In the American Civil War, the South lost the decision very largely—some military historians say almost entirely—because, short of all supplies at the war's beginning, it ran out of everything long before the end.

In his ill-fated campaign against the Russians, Napoleon suffered no serious military set-backs, but he lost the war because his supply lines failed.

Col. Gen. Von Paulus, who lost his entire army of 250,000 Germans at Stalingrad, has stated that if he had received only 300 tons daily by strategic airlift, the fall of Stalingrad to the Germans would have been assured. But the cat and dog variety of German transport aircraft—small twin engine types of obsolete and inefficient design—combined with lack of proper maintenance, and failure to winterize the equipment, doomed the German air transport task from the outset, and thus doomed Von Paulus's army.

The Russians could bring more and more men to Stalingrad as the battle progressed; the Germans could not bring any men in, and at the last couldn't get one man out. Stalingrad provided one of the most conclusive logistics lessons of World War II.

Today, when the emphasis seems to be placed chiefly upon superior weapons as the key to victory, it might be well to remind ourselves that in World War II the Germans had superior quality in many of their weapons, yet they lost the war.

Our piston-engine fighter planes were not in any way comparable in speed to the German jet fighter, the

Me-262. Our anti-aircraft guns were not as versatile and effective as the German 88 mm. We had nothing whatever in the guided missile field, in which the Germans had an absolute monopoly. In fact, there can be no doubt of the superiority of the German weapons systems.

Yet we won, against missiles, jets, and all. Why?

There are several answers, including prominently the Allies' numerical superiority, their greater industrial capacity, and their relative freedom from aerial bombardment. But the answer lies also in their ability to produce, stockpile, and transport the materiel needed to sustain operations.

In contrast to the bomb-blasted German supply system of rail and road transport, the United States had a fleet of a thousand Liberty ships, together with other cargo vessels and the passenger liners of its own and other Allied nations. We had a splendid rail system within the United States, upon which no bomb ever was dropped. We had unbombed railroads in Europe, the Red Ball trucking system in Europe to support our advancing forces, the Big Inch pipeline system for petroleum, and the rapidly developed Air Transport Command and the Naval Air Transport Service.

Finally, it was joint American-British control of the seas that enabled us to supply Britain and all of Europe. Without that support, the war undoubtedly would have been lost.

In the Korean war, where we faced numerically superior armies, it was only our ability to keep our much smaller land forces supplied by surface shipping and transport aircraft that enabled us to stay in Korea and achieve even a stalemate.

### Men and Weapons Not Enough

From these examples, selected from many, it would appear that transport is quite as important as men and weapons. Men and weapons alone, even atomic weapons, are not enough in themselves to win wars; supplies also are required.

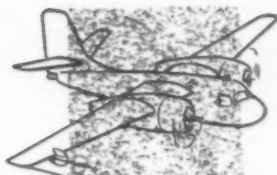
It should be clear that transport—and, in this air-atomic age, air transport—is a vital part of the weapons system. The atomic cannon is completely useless without the men who bring the shells to the gun. And the artillerymen may need those shells in a hurry, long before slow cargo ships can possibly churn across an ocean.

Some 2000 years ago a Chinese general laid down certain principles of war which still apply today. These are mobility, flexibility and surprise. Coupled with this is mass—which nation can bring to bear superior forces where they are needed and when they are needed. Air transportation embraces all of these principles of war and gives to the military commander the means to exploit them all.

We must view military air transportation as a system, as an integral part of our entire collection of weapons systems. Our commercial air lines and cargo carriers must not be excluded from that system. They



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Special purpose instruments

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## No Basic Improvement Since 1946

form a part of the military transport potential, and a very considerable part. Under the Civil Reserve Air Fleet Plan, 305 civil air transports will be taken over by the military under charter agreements with the civil carriers, to be operated and maintained by civilians.

However, most of the commercial potential is currently in the field of transporting passengers. For that reason it is sound that the military should specialize in supplying the large deficit in the air cargo field if we are to have an adequate transport fleet in time of war. What justification have we for building a large fleet of modern air transports in time of peace?

As long as we have troops in overseas areas, whether in peacetime or in wartime, we must transport them and supply them. This task is expensive, no matter what medium of transport we use, and time consuming if we use surface means.

### Four Months in the Pipeline

It has been estimated that it takes 120 days—four months—for an item to be ordered and transported to an overseas unit by surface means, which include truck, train, and ship. These items en route are called "pipeline inventory." So, there is continuously four months' worth of supplies merely traveling, or lying in freight stations or on docks awaiting loading aboard a train or cargo vessel.

If the time in transit could be cut down materially by the use of airlift from the production area to the combat theater area, the inventory could be cut.

In addition to the pipeline inventory of supplies, we must consider the cost of personnel traveling to and from these overseas installations.

We do not expect our men to remain overseas indefinitely; that would be bad for morale. So, a system of rotation has been put into operation. It does not often come to the public attention that it takes a man more than a month to be released from his old station, clear up his personal affairs prior to reporting for overseas assignment, process through the port area, and then take a slow boat and finally a truck to his destination.

### Costly Habit

A good example of how costly this is may be taken from records of the Korean War. Suppose our strength in that war theater is 240,000 men, who must be sent back home after six months in combat. That would mean that there would be 40,000 men continuously in the pipeline. If the average pay and support of these men was \$200 per man per month, it would mean a cost of eight million dollars per month, without considering the cost of transportation. Yet, with proper procedures and airlift, instead of slow steamer, this cost could be reduced to one quarter of that figure, or two million dollars per month.

Today, through lack of enough transport aircraft

to move infantry divisions and their equipment overseas, the Army is practically tied down to the slow-moving troop transport and cargo vessel. No divisions can be moved overseas in a hurry to any threatened war theater. If war broke out tomorrow, troops would be moved by the same relatively slow surface means used in World War II.

True, high priority personnel and critically needed materiel would go by air; but they went by air during the closing years of World War II and in the Korean War. There has been no basic improvement since 1946 in the moving of troops, with the exception that the sick and wounded are brought back by ambulance aircraft rather than by hospital ship.

At the outbreak of another world war, aircraft of the Military Air Transport Service (MATS) would not be available to move infantry and their equipment—and there is no use airlifting the troops unless we also can airlift their equipment and supplies.

MATS transport aircraft, at the start of hostilities, would be almost solely employed to support the movement of the Strategic Air Command to advance bases. Only after MATS had accomplished this highest priority mission would its aircraft become available to support other services.

### SAC Comes First

Even after that, MATS would have to continue with the resupply of SAC at its overseas bases. Without MATS to airlift its maintenance personnel, equipment, and supplies, SAC combat wings would be grounded on foreign soil at advance bases. It is doubtful if they could continue their mission with their medium range bombers and fighters, unless MATS and their own small transport fleet could keep them supplied.

Air transport therefore is an important part of the weapons system. It is vital because the combat part of that system won't continue working without it. And we haven't nearly enough of this support service. Why has it apparently been overlooked?

After the war, there was a demand for economy and a drastic cut in defense spending. Only so much money was appropriated by Congress. The military services were faced with an appalling fact: the jet engine had rendered all the world's air forces obsolescent, if not obsolete.

The Soviets realized this as quickly as we did. They, however, continued new production, while we cut back our production of combat aircraft and for a time practically ceased the production of transports for the Air Force and Navy. Then, when we realized the necessity for building the jets, the bombers and fighters came first. They had and have priority in production. The transports had to await their turn.

If a shooting global war started today, we would enter it with only about 25% of the airlift needed to give our armed forces satisfactory mobility.

... CY CALDWELL

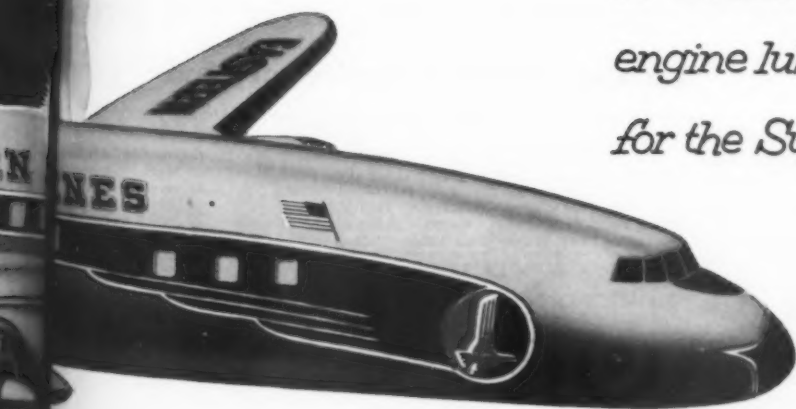
a New





# Eastern adds Constellation to the Skies !

... Once again Sinclair  
is chosen for dependable  
engine lubrication...this time,  
for the Super-C.



The newest member of Eastern's Great Silver Fleet has taken to the skies. The latest in Constellations, Eastern Air Lines' SUPER-C is designed to give Eastern passengers faster service with the same dependability proven over billions of passenger miles.

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# Congress May Get "All-Up" Mail Plan in '54

**Expedited service being considered by both PO and ATA; final action unlikely till next year.**

By ERIC BRAMLEY

**F**IRST serious consideration of "all-up" mail for the U. S., a plan under which all non-local first-class mail traveling more than a certain distance would go by air, seems likely during the present session of Congress, but it seems doubtful that final, favorable action will be taken in an election year.

Signs pointing to Congressional consideration include:

- **Post Office and Civil Service committees** of both Senate and House are known to be interested in the all-up or "expedited" mail plan. The Senate group, which has been studying Post Office operations, may recommend legislation.

- **Postmaster General Arthur Summerfield** will, in any event, be asking Congress for increased first-class and air mail postage rates. In hearings on such increases, the all-up system is almost certain to be discussed.

- **Air Transport Association** has gone on record favoring such a plan and has prepared an 88-page study covering estimated results. The study has been favorably received by legislators who have seen it.

- **An indirect** but nevertheless powerful influence is the fact that Canada will adopt all-up mail on April 1, raising its first-class postage rate from 4¢ to 5¢ and abolishing the 7¢ air mail rate. For some years Canada has been flying its 4¢ mail on a space-available basis where delivery would be expedited, but had retained 7¢ air mail postage.

If the U. S. were to adopt an all-up plan with a single five-cent postage rate, flying all mail over 400 miles, the increased postal revenue would reduce the Post Office deficit (estimated at \$595 million for fiscal 1954) by over \$300 million. Airlines' ton-miles of mail would jump from about 73 million yearly to almost 190 million, and their mail revenues would increase by many millions of dollars.

Big deterring factor is opposition which may come from the public to an increase in first-class postage from 3¢ to 5¢, even though service would be substantially speeded. This makes election year action unlikely. In addition, railroads will fight the plan. Even though the effect on their revenues would not be great, they will oppose it as a matter of principle.

A voluminous Air Transport Association report on all-up mail has been

prepared by Dr. Myles E. Robinson, associate director of the air transport economics division. In his study, Dr. Robinson assumed a straight five-cent rate for a single priority class of non-local mail (ATA directors have endorsed an all-up plan but made no recommenda-

tion on the rate) with 400 miles as rough breaking point between surface and airborne mail. Local mail would remain at 3¢. (See tables below.)

His conclusions:

- **Based on 1952 data**, the Post Office can be expected to reduce its annual deficit by \$316 million through inauguration of an expedited mail plan. Revenue increases should total \$346 million and balancing cost increases should

## Nature of Mail Traffic Today

*Tentative Estimate of First Class, Non-Local Mail Subject to Diversion to Air, Where More Than 400 Miles is Predominately by Air, Based on Fiscal 1952*

Mileage Increment	Amount	Pounds Pct.	Estimated Diversion (Percent)	Estimated Pounds Diverted	Estimated Diversion (In Air Ton-Miles)
0-150	106,848,863	21.0	4.0	20,352,164	1,015,000
151-500	244,225,971	48.0	12.0	61,056,493	13,150,000
501-1000	111,936,904	22.0	20.0	101,760,822	50,752,000
1000	45,792,370	9.0	9.0	45,792,370	51,700,000
<b>TOTAL</b>	<b>508,804,108</b>	<b>100.0</b>	<b>45.0</b>	<b>228,961,849</b>	<b>116,722,000</b>

**NOTE:** Air mail ton-miles are higher than the originated ton-miles reported by the Post Office, due to several factors—addition of weight of bags and locks, longer actual haul than the straight line distances from origin to center of population of state of destination as used by the Post Office, etc. Generally, actual air ton-miles range from 30% to 45% higher than the Post Office ton-miles. An expansion factor of 33% is used here.

## Existing Airline Capacity for Mail

*Estimated, Domestic Scheduled Airlines, 1953-1970<sup>1</sup> (Millions)*

Year	Available Ton-Miles	Estimated Passenger Ton-Miles <sup>2</sup>	Available Cargo Ton-Miles	Estimated Cargo Ton-Miles Including Regular Mail	Excess Ton-Miles	Estimated Mail Diversion (Millions of Ton-Miles)	Relative Mail To Excess Capacity (Percent)
1953	3,039	1,485	1,554	260	1,294	117	9.0
1955	3,673	1,725	1,948	375	1,573	129	8.2
1958	4,195	1,928	2,267	500	1,767	147	8.3
1960	4,626	2,113	2,513	750	1,763	160	9.1
1965	5,262	2,485	2,777	1,000	1,777	190	10.7
1970	5,873	2,782	3,091	1,450	1,641	220	13.4

<sup>1</sup> These data do not show the availability of capacity at the time of day when the peak mail loads occur. Further, "excess ton-miles" show a weight-distance factor but do not indicate the significance of space. The experience of the industry is that a shortage of space occurs before unused ton-miles disappear. It is obvious that for this presentation neither factor can be measured. Realistically, the ratio of unused ton-miles to available ton-miles ranges from 42.8% in 1955 to 27.9% in 1970. With this margin it should be expected that space as well as ton-miles will be easily adequate to handle mail over and above all other expected traffic requirements.

<sup>2</sup> Assuming 10 revenue passenger-miles are equal to one ton-mile. While this figure is only an approximation, it is usable here where only general estimates are required. These estimates are based on current industry trends and on equipment programs.

**SOURCE:** It is estimated that the rates of increase in diverted ton-miles will approximate the increase in total pounds of first class non-local mail, and that the average length of haul will not change materially in the 17-year period. Annual poundage increases from 1948 to 1970 were used as follows: 1948-1.6%, 1949-1.9%, 1950-2.4%, 1951-9.7%, 1952-6.0% (1953-no change), 1955-5%, 1958-4.5%, 1960-4%, 1965-3.5%, 1970-3.0%.

## What the Public Would Gain

Between (501-700 Miles)	Rail Miles	Fastest Train Time	Fastest Plane Time	Next Day Delivery To Addressee
Chicago-Buffalo	525	8'35"	2'	Air & Rail
Cleveland-St. Louis	536	10'12"	2'20"	Air Only
Atlanta-Memphis	419	12'15"	2'0"	Air & Rail
Washington-Atlanta	633	13'20"	2'51"	Air Only
St. Louis-Minneapolis	585	15'	4'11"	Air Only
New Orleans-Dallas	520	12'15"	1'51"	Air Only

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Such honors are no novelty to Braniff, which has flown nearly three billion passenger miles without fatality, received twenty safety awards from the National Safety Council in the twenty-one years they have been given.

The Champion Spark Plug Company is proud of the part it plays in helping Braniff, as well as ninety-four other major airlines, maintain safe, dependable air service all over the world.

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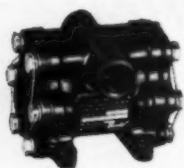
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approximately \$30 million. If an allowance of \$10 million is made for contingencies, net increased revenue would be \$306 million.

• **Scheduled domestic airlines** should secure an increase of 116.7 million ton-miles through diversion from surface carriers, chiefly railroads. At average service mail pay of 47.13¢ per ton-mile, revenues would increase \$55 million.

• **Effect of diversion on rail carriers** should not be significant. It is estimated that 7.92% of rail mail revenues would be lost, but only 0.239% of total operating revenues. With pending rail mail pay increases and continuing downtrend of passenger train mileage and upward swing of passenger deficits, this diverted mail may soon be lost anyway.

• **Airlines would have no difficulty** handling the diverted mail. In calendar 1953, it would have taken only nine per cent of their excess capacity over all regular traffic to handle this volume. With new equipment on order and with a liberal estimate of traffic growth, proportion of excess capacity needed should range from 8.2% in 1955 to 13.4% in 1970.

Local service and small regional operators will have plenty of space to handle mail. Their problem will be primarily one of scheduling.

Large users of business mail are not in favor of a five-cent expedited program, yet by a ratio of between eight and nine to one they indicate that there would be no changes either in volume of first-class mail or mailing practices if the program is introduced.

Another possibility that might be considered by Congress is establishment of a four-cent first-class postage and a seven-cent air rate, with four-cent mail moving by air where it can be expedited—similar to the present Canadian plan. It is feared, however, that this would lead to a substantial drop in air mail revenues as the public learned that its letters would fly for four cents. In addition, the Post Office could be expected to press for much lower airline pay for the 4¢ mail (rates in the present first-class mail experiments are 18.6¢ and 20.04¢).

The ATA estimate of \$55 million more revenue annually for the airlines from all-up mail may be unrealistic in that it assumes a 47¢ per ton-mile service payment. The PO would undoubtedly insist upon lower pay for more volume.

Both industry and government officials assert that an all-up system is bound to come. They see discussion in Congress as an important step in acquainting both the legislators and the public with this method of speeding the mail—a method, incidentally, that has been used for years throughout Europe.

• • •

## Flight Safety Trains Business Pilots

**Firm offers refresher courses and transition training; prepares maintenance manuals.**

By LOIS C. PHILMUS

**B**USINESS AIRCRAFT PILOTS must maintain their proficiency and their knowledge of latest developments, as much as, or more than, airline pilots. But just a fraction of the corporations operating aircraft fleets can afford to maintain any sort of regular training program. To meet this demand Flight Safety, Inc., was organized two years ago to act as the "postgraduate" pilots' school for the business aircraft fleet.



Ueltschi

Headed by Capt. A. L. Ueltschi, a business pilot himself for many years, Flight Safety makes its headquarters in the Marine Terminal at LaGuardia Field in New York. It uses the latest in electronic equipment in its refresher training courses.

### Variety of Duties

The curriculum takes into account the fact that a business pilot's duties are more varied than those of air carrier pilots.

As Capt. Ueltschi puts it: "The business pilot must be prepared to fly anywhere at any time, frequently over routes with which he is not familiar and into airports with only the most primitive facilities. He usually serves as his own dispatcher and meteorologist, and occasionally as his own mechanic. He must have confidence to resist any pressure, direct or implied, to compromise safety. His standards must be the highest. He flies men who are among the most important and valuable in the nation."

The indoctrination and refresher courses are given on an individual company basis, with pilot and co-pilot working as a team throughout. The training date for appearance at LaGuardia Field is arranged so that the pilot and co-pilot may bring the aircraft they operate with them. The flight program is conducted on the actual equipment they are to operate.

New crews coming in for the first time find that it takes seven days to complete the initial course. Subsequent refresher courses can be taken at six

months intervals and are usually completed in three to four days. However, these are averages, as time is allocated in accordance with particular crew requirements.

Nature of the program is as follows: ground training includes briefing on performance characteristics of the aircraft types used, stressing performance limitations; best speeds and power settings; single engine performance; V1 and V2 speeds; fuel consumption; and emergency procedures. Ground work also includes aspects of meteorology, air traffic control, and simulated flight.

Actual flight training includes pre-flight procedures; take-off; various in-flight maneuvers; instrument navigation; emergency procedures; and landings.

Among the training aids used by Flight Safety are the Curtiss-Wright Dehmel Radio Aids, which include automatic ranges, ILS, VAR, VOR, and RMI. The FS staff has converted a Link trainer to house the Dehmel aids, and it has been found to be quite effective.

Crew coordination is stressed throughout the program; the pilot and his co-pilot are never separated during the training period.

Flight Safety's services for the business aircraft pilot extend beyond the refresher training operation. Transition training is another popular feature. When a company converts from DC-3's to Beech D-18's or to Lodestars, for instance, the crews come in for special orientation work on the new aircraft they are to operate.

Ueltschi stresses that the organization is not a company "watch dog." The pilots are treated as professionals at all times, and must come in voluntarily. It is a pilot service, for pilots, by pilots.

Preparation of flight and maintenance manuals for the individual company aircraft is another important contribution. The Flight Safety staff, which consists of experts in each field of aviation, takes part in the preparation. Progressive maintenance is outlined, along with suggested procedures for the particular aircraft in question. An analysis of the particular equipment is also presented.

In many instances, the organization has been asked to act as the "aviation department" for companies entering into business aircraft operation. In such cases, Flight Safety has set up the entire opera-

tion, recommending equipment for the company's particular needs, suggesting flight personnel, training, etc.

Because of the elements involved, Flight Safety works closely with manufacturers of all types of aircraft and aircraft equipment. Whenever possible the company flight-tests and evaluates new equipment on the market so that clients can be kept appraised.

A newsletter service is maintained for the business aircraft group. Issued periodically, it contains latest information on new equipment, regulation changes, safety reports, etc.

Although originally designed for the business fleet, several airlines have found it economical to avail themselves of Flight Safety's pilot program. Two of the smaller airlines use it instead of maintaining their own programs, and in several instances the larger carriers have made use of the service when their own facilities have become overcrowded.

To date, 50 companies and airlines are numbered among Flight Safety's clients.

The cost of the pilot training program is \$900 for the initial training of a two-man crew, and \$600 for the six-month refresher courses, which up-date crews on latest developments in addition to proficiency checks. • • •

## Wider Distribution for Moral Re-Armament Film

Wider distribution of its Miami airlines color film, "An Idea Takes Wings," is being arranged by Moral Re-Armament, which has had 90 sets of prints run off for use both in this country and abroad.

This is the movie that MRA made in Miami with pilots, machinists and executives of Eastern Air Lines, National Airlines and Pan American World Airways re-enacting their own experiences. It documents settlement of the dispute between National Airlines and its pilots after MRA was brought into the picture, and the subsequent expansion of the group's "what's right, not who's right" philosophy into the labor relations of the other airlines and other unions in the Miami area.

MRA officials in Los Angeles say the film has made such a hit wherever it has been shown it was decided to run off additional prints and make it generally available Spanish and French translations are being prepared.

The film may be obtained for showing by communicating with Moral Re-Armament, 833 South Flower St., Los Angeles, 17, Calif.

## Letters

(Contd. from page 6)

ices, many of which are competitive with the services of the so-called local service carriers. We have already noted as a result of Mr. Adams' speech, activity designed to divert traffic from the client's local services and channel it over the schedules of local service operators.

Irrespective of our agreement or disagreement with Mr. Adams' conclusion, and we are much more frequently inclined to disagree than agree, I certainly am willing to give him an A-plus for conscientious, constructive and unbiased effort to improve in every way the country's air transportation system.

AN AIRLINE ATTORNEY

### NAVY'S ROLE

To the Editor:

In the past week I have had an opportunity to read your piece (The Navy's Role in Strategic Bombing) appearing in the October 26 issue. I think it is excellent and along precisely the lines on which the American public requires guidance at this time.

In a recent talk at Seattle I covered much the same general area as you in speaking to a group of Navy League members and Naval reservists. I am taking the liberty of enclosing a copy of these remarks, thinking that possibly you may find therein some background material of future interest.

R. A. OFSTIE

The Deputy Chief of Naval Operations  
(Air) Washington

### WHERE'S MITCHELL?

To The Editor:

I have been asked to locate an aviation writer named J. W. Mitchell, who at one time prepared an article about the aeronautical accomplishments of Samuel P. Langley, third secretary of the Smithsonian Institution, entitled "The First Bird Man." This appeared in the *Saturday Evening Post* some years ago. If any of your readers know of an author by this name and could furnish me with his present address, I would be greatly obliged.

PAUL EDWARD GARBNER  
Head Curator

National Air Museum  
Smithsonian Institution  
Washington 25, D. C.

### ECONOMY IN AIR POWER

To the Editor:

Just a word of appreciation for your editorial comment on "Economy in Air Power." We are delighted you liked it, and such nice words give us a great deal of encouragement. There has been an exceedingly wide demand for the book—so wide in fact that it has embarrassed our supply.

AVERY McBEE

Director, Public Relations  
Aircraft Industries Association  
Washington 5, D. C.



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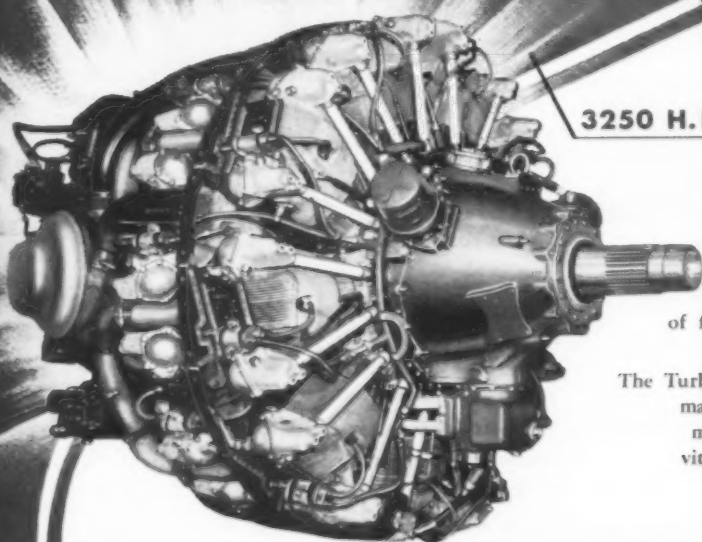
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## West Coast Talk

By Fred S. Hunter

Almost every third day some one asks us which U.S. domestic airline is going to buy Comets. We haven't the faintest idea. But we know a lot of people who have it all figured out that it will be TWA.

What intrigues us as much as anything else is that there are so many people in aviation—here in the shadow of a couple of pretty good transport manufacturers, Douglas and Lockheed, and on the same coast, at least, with Boeing—who seem to feel the jet transport ice in this country probably will be broken by somebody's order for a fleet of the British jobs. Maybe it's the influence of all those Jaguars on Sunset Boulevard.

Early in the game, as might be expected, **Eddie Rickenbacker** was way out in front in the speculation on which carrier would pioneer turbojet transport operations in this country. **Ted Baker** of National also came in for a share of the conjecture. This was predicated on the theory that the jet influence, moving across the Atlantic, would gain a foothold along the east coast first and not penetrate to the transcontinental carriers until later.

But when EAL placed its order for Douglas DC-7's and TWA bought Lockheed 1049E Super Constellations, the whole speculative picture changed. Now, the dopesters tell you, **Howard Hughes** is the gent who is fixing to sign on the dotted line for Comet III's. According to the way they have it figured out, it is all very logical. The new Model 1049E Super Connies will fill out TWA's fleet of piston-powered money-makers. By buying Comet jets Mr. H. will be able to meet any performance competition from European carriers flying fast jets on international schedules over the same routes as TWA. At the same time he can get the jump on his domestic competitors by having Comets to put on TWA's hi-de-ho Ambassador schedules between New York and Pacific Coast. What could be sweeter?

First month of a new year is a good month for crystal-gazing, so let's take a look at what Carlos Wood, chief preliminary design engineer for the Santa Monica division of Douglas Aircraft Co., submits we may see in 10 to 20 years:

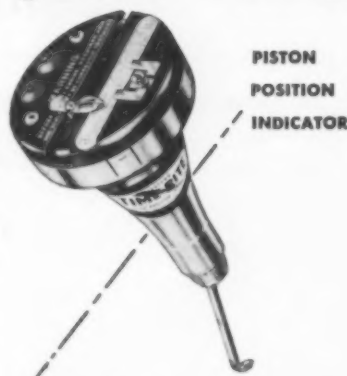
- Cargo aircraft that will carry freight at rates lower than present LCL freight rates or truck rates.
- Passenger aircraft cruising supersonically at fares no higher than present coach fares. (One way to have lunch in New York and another lunch in San Francisco, adds Carlos.)
- Chemically fueled military aircraft of twice the speed and altitude capabilities of those now beginning to fly.
- Atomically fueled military aircraft of essentially unlimited range.

These, Carlos explains, are guesses. Maybe they're educated guesses; maybe not, he adds, being a modest man.

Which of the four would you say would be the toughest to accomplish? We'd guess No. 1.

Won't be long now before Lockheed will have two turboprops running. The YC-130 prototype, which will be powered by Allison's new T56 engine, should roll out next month. Being a turboprop, it's anybody's guess as to just how long it will take to have it flying. But the R7V-2, the Navy's turboprop conversion of the Super Constellation powered by P & W T34's, should be flying by sometime in March. Whatever else may be the case, Lockheed's flight test division certainly is headed for a busy season.

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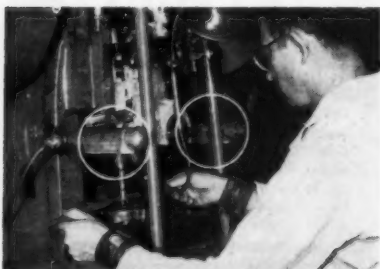
**Push-button wire checker** on trial at Lockheed Aircraft Corp.'s Georgia Division is demonstrated here by F. W. Mulligan, foreman, M. E. Landers, supervisor, and J. H. Bell, night foreman. Electrical "brain" checks wire harnesses in Lockheed-built Boeing B-47 bombers.

## Atomic Wristbands Guard Press Operators

United Air Lines has adopted the use of a new "atomic" safety device to help prevent employee injuries in the operation of punch presses at its San Francisco maintenance base.

The device uses special wristbands worn by the press operators and a series of strategically located Geiger tubes which respond to radioactive crystals in the wristbands if the operator's hand strays into a danger area.

The device is said to be harmless to wearers, and so sensitive that it can stop the press punch in mid-stroke. As an added safety feature, the press cannot be operated unless the operator is wearing the wristbands. An impulse



CIRCLES indicate Geiger tubes which respond to radioactive crystals on wrist.

from the radio-active crystals is required to trigger the machine for operation, and within 15 seconds after the bands are removed, the press automatically shuts down.

The equipment was designed for UAL by Hazatrol Inc., of Berkeley, Calif., and was installed for approximately \$800. According to United's plant engineers, the installation is the first of its kind for heavy machinery and opens up a new field of industrial safety.

## MAINTENANCE BRIEFS

Longer life on Thompson type fuel pump rotors is being realized by Trans World Airlines following a recent employee suggestion. Past experience had indicated high repair and usage of pump rotors due to wear on only one side. Suggestion was to exchange rotors with those of auxiliary fuel pumps which have an opposite drive action. The result has brought double rotor service life before repair or replacement.

The Air Force's Air Materiel Command has awarded a \$1.3 million contract to Westinghouse Air Brake Co. for maintenance of F-86D flight simulators.

## Aircraft Utilization

Average Revenue Hours of Use Per Day Per Aircraft

### DOMESTIC

		2nd Quarter 1953	1st Quarter 1953
American	2 eng. pass...	7:06	7:06
	4 eng. pass...	10:20	10:17
	cargo.....	4:17	4:14
Braniff	2 eng. pass...	5:56	6:13
	4 eng. pass...	7:28	6:57
	cargo.....	3:32	3:56
Capital	2 eng. pass...	7:37	7:40
	4 eng. pass...	9:22	9:19
	cargo.....	5:30	5:30
Caribair	2 eng. pass...	4:19	4:21
C & S *	2 eng. pass...	9:42	9:42
	4 eng. pass...	8:13	8:13
Colonial	2 eng. pass...	7:17	8:12
	4 eng. pass...	9:39	7:46
	cargo.....	8:15	3:03
Continental	2 eng. pass...	6:48	5:50
	4 eng. pass...	5:26	5:17
Delta-C&S**	2 eng. pass...	8:32	7:40
	4 eng. pass...	9:13	9:11
	cargo.....	7:03	6:37
Eastern	2 eng. pass...	7:56	7:44
	4 eng. pass...	10:39	10:28
Hawaiian	2 eng. pass...	3:50	4:06
	cargo.....	3:17	2:59
National	2 eng. pass...	8:14	7:31
	4 eng. pass...	8:53	9:13
	cargo.....	5:36	4:48
Northeast	2 eng. pass...	6:12	7:33
	cargo.....	6:30	6:30
Northwest	2 eng. pass...	8:35	8:43
	4 eng. pass...	10:01	10:05
	cargo.....	11:00	8:00
Trans Pacific	2 eng. pass...	5:32	5:48
TWA	2 eng. pass...	5:53	6:02
	4 eng. pass...	8:13	8:46
	cargo.....	5:29	4:38
United	2 eng. pass...	5:14	5:02
	4 eng. pass...	8:40	8:46
	cargo.....	6:19	4:54
Western	2 eng. pass...	6:38	7:04
	4 eng. pass...	8:21	8:37

\* Figures for C&S are for April only. Delta-C&S merger was effective May 1, 1953.

\*\* Delta-C&S merger was effective May 1, 1953.

## PHOTO CREDITS

Cover—Hamilton Standard; p. 13—CAA; p. 14—CAB; p. 17—Hamilton Standard; p. 18—USAF; p. 30—Short Bros. & Harland; p. 35—AA; p. 38—U. S. Army; p. 41—Potter; p. 67—Darmsteter; p. 68—SNCASO.

# Bendix Builds a Better cable clamp *the* AN3057B

Inexpensive • Efficient • Versatile

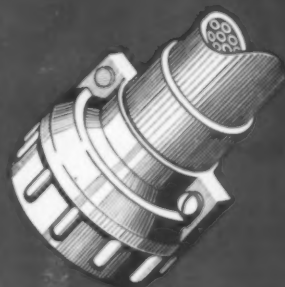
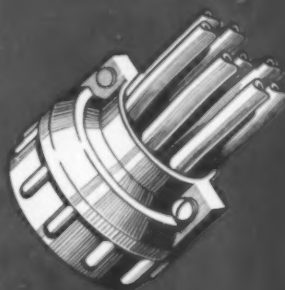
The new Bendix AN approved AN3057B cable clamp is now available. Engineered by Bendix to the highest quality standards, this cable clamp offers major design improvements. The clamping action is radial and completely eliminates wire strain and chafing by holding the wire bundle firmly in rubber. This clamp will accommodate a wide range of wire bundle sizes, but an even greater range can be handled through the use of the Bendix AN3420A accessory telescoping sleeve.

The new AN3057B cable clamp will also waterproof multi-conductor rubber covered cable on the rear of a connector, or where moisture-proof entrance through a bulkhead or into an equipment box is required.

This versatile clamp is a product of the Scintilla Magneto Division of Bendix Aviation Corporation and is a companion AN accessory to the world famous Bendix Scinflex line of electrical connectors. Write our Sales Department for details.

## Outstanding Features

- Neoprene gland.
- Centered clamping action.
- Increased close down.
- Positive grounding feature.
- Cadmium plated die-cast aluminum nut.
- Shorter over-all length.
- Waterproofs multi-conductor cable.
- Immediate delivery.



**Bendix**

SCINTILLA DIVISION of **Bendix**  
SIDNEY, NEW YORK

FACTORY BRANCH OFFICES: 117 E. Providence Ave., Burbank, Calif. • 582 Market Street, San Francisco 4, California • Stephenson Bldg., 6560 Cass Ave., Detroit 2, Michigan • 615 Greenwood Ave., Jankintown, Pa. • Brouwer Bldg., 176 W. Wisconsin Avenue, Milwaukee, Wisconsin. EXPORT SALES: Bendix International Division, 205 East 42nd St., New York 17, N. Y.

## compare YOUR drill fixture COSTS with ANCHOR BUSHING templates

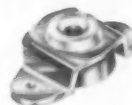
Anchor Bushing drill templates, using sheet metal or laminate plastic materials, are made flat or in compound curved forms at a fraction of cost and time required for similar conventional drill fixtures.

Your TOOLING COSTS are reduced in simplified design and fabricating methods. Your MATERIAL DOLLARS go further by using inexpensive hardened steel Anchor Bushings and sheet metal or plastic materials. Your PRODUCTION JOB TIME is conserved since lightweight Anchor Bushing templates reduce worker fatigue and storage problems.

Compare your drill tooling methods, as have leading aircraft tooling departments, with the Anchor Bushing Method.

Ask today for our Anchor Bushing Catalog - it describes methods, bushing styles, sizes and prices.

Solar Aircraft Company, San Diego, craftsmen use contoured Anchor Bushing drill template on nacelle of Lockheed P2V Neptune aircraft.



Standard Anchor Bushings for rivet or spot weld attachment to sheet metal or fiberglass.



Nutplate Anchor Bushings provide three coordinated screw and rivet attachment holes in one bushing.



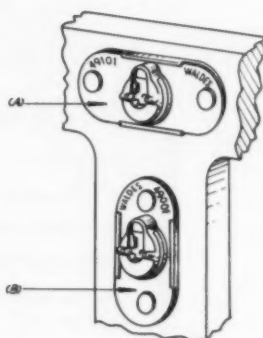
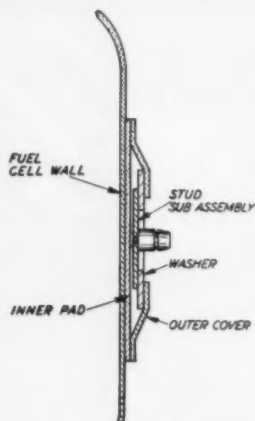
One piece Anchor Bushings for laminate plastic materials, imbedded into plastic before heat hardening process.



THE *hi-shear* RIVET TOOL COMPANY  
8924 BELLANCA AVENUE • LOS ANGELES 45, CALIFORNIA

JANUARY 18, 1954

## New Products



### Snap-Type Fuel Cell Fastener

A snap-type fastener for aircraft fuel cell installations which does away with the need for piercing the cell wall and the resulting danger of tears or leakage is being marketed by Waldes Kohinoor, Inc.

Called the Waldes Positive Lock Fastener, the unit consists of three major components: a male stud assembly which is fitted to the outer wall of the fuel cell,

an aluminum washer which serves as a bearing surface for the stud, and a housing assembly which may either be riveted or screwed to the structure to which the part is being fastened.

The new Waldes unit also offers the advantage of an audible clicking sound to indicate a secure attachment of the parts during assembly in "blind" locations.

When locked in place, the stud is free to float within the washer opening  $\frac{1}{4}$ " in any direction, making the working tolerances required in fuel cell installations less critical.

In a typical application, the stainless steel stud of the Waldes fastener is riveted to an aluminum backplate. A patch of the same material as the cell is then sealed in any desired position on the outer wall of the cell. The stud is placed on the patch with the aluminum washer centered over it. Another patch, similar to the first but with a hole cut in the center corresponding to the opening in the washer, is applied over the washer and is sealed to the adjacent edges of the first patch.

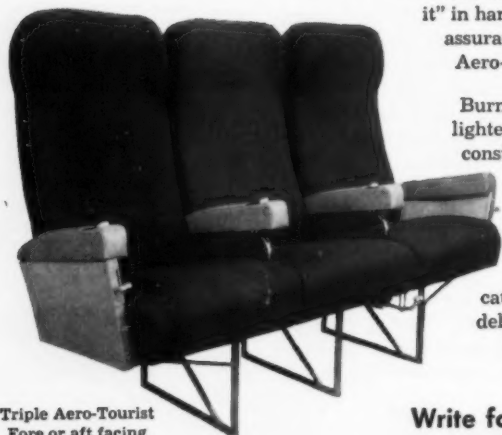
After the housing assembly is attached to the structure opposite the stud installation, the two parts are engaged. A Waldes Truarc retaining ring, secured against opening by its firm retention in the housing, locks the stud to the housing. The assembly can be disengaged by pushing it down into the housing, and then up toward the open end of the housing, an operation that requires little force.

The Waldes fastener may be used in any desired position and can be applied on inclined surfaces at any angle. The housing assembly requires only two rivets or screws for retention. Samples and literature are available. Drawing above shows horizontal (A) and vertical (B) mountings.

Address: Waldes Kohinoor, Inc., Dept. AAP, 47-16 Austel Place, Long Island City 1, N. Y.

## BURNS AERO-Tourist Seats

**Sturdy, handsome...and comfortable!**



Triple Aero-Tourist  
Fore or aft facing

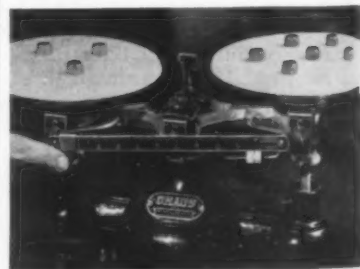
Passenger comfort and eye appeal...easy installation and the ability to "take it" in hard Air Tourist service—your assurance when you install Burns Aero-Tourist seating equipment!

Burns Aero seats are among the lightest ever designed • CM steel construction keeps maintenance at a minimum • Contoured and cushioned for greatest comfort • Superb craftsmanship • Built to individual airline specifications • Prompt, on-schedule delivery • Burns Aero-Tourist seats are in airline service throughout the world.

**Write for details—Airline or Executive aircraft seats.**

**BURNS** AERO SEAT CO., INC.

3900 COHASSET STREET, P. O. BOX 127 • BURBANK, CALIFORNIA



**Locknuts.** Production of titanium locknuts which will meet AN tensile strength requirements for steel nuts of the same thread size but weigh less than half as much has been announced by the Elastic Stop Nut Corp. of America. The initial output will be 12 point (double hex) nuts with nylon locking collars in sizes from  $5/16$ " to  $5/8$ ".

Part of the first ESNA production has been earmarked for Republic Aviation Corp., which is conducting an extensive investigation of titanium aircraft components. Republic reportedly estimates that substitution of titanium for steel in aircraft fasteners could save as much as 213 pounds on a fighter and have the eventual effect of

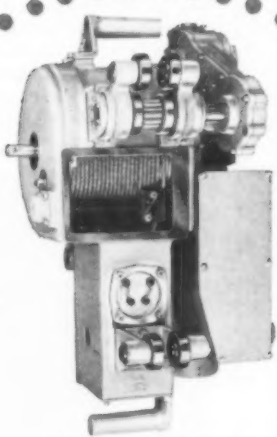




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with an Aircraft Hoist

by **BREEZE  
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CARGO HANDLING • TOWING  
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■ Whether you want to pick up a 160-lb. man or 10,000 lbs. of cargo, BREEZE can engineer the right strato-hoist for your needs. We have developed a new line of cargo handling hoists and winches that offer the advantages of compactness and precision performance.

All feature a high rated load in relation to extremely light weight. All have special overload and safety features to meet the exacting standards of the advancing aircraft industry. For the newest in electrical, mechanical or hydraulic hoists, consult BREEZE engineers.

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Radio Ignition Shielding    Flexible Metal Tubing    Actuating Systems    Welded Diaphragm Bellows    Aero-Seal Hose Clamps

JANUARY 18, 1954

**NOW! ANOTHER FIRST!**

# WESTERN ANNOUNCES ITS AIR COACH ON THE DIRECT ROUTE BETWEEN MINNEAPOLIS ST. PAUL AND LOS ANGELES

**BIG 4-ENGINE COACHMASTERS \$79<sup>00</sup>**  
PLUS TAX

Now you can take your choice  
of Western's thrifty Air Coach or deluxe DC-6B!

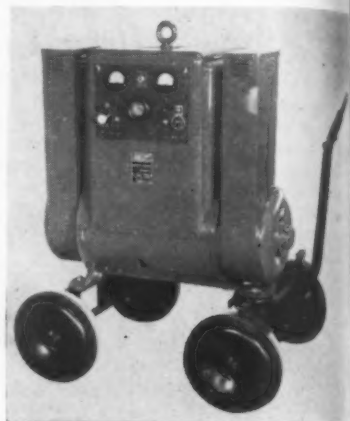
	DC-6B	COACH		DC-6B	COACH
<b>EASTBOUND</b>			<b>WESTBOUND</b>		
Lv Los Angeles	9:30 pm	11:10 am	Lv Minn.-St. Paul	9:00 am	11:00 pm
Ar Minn.-St. Paul	6:15 am	9:30 pm	Ar Los Angeles	2:30 pm	6:00 am

## WESTERN AIR LINES

AMERICA'S OLDEST AIRLINE

a one ton weight saving, assuming the every pound saved in design structure weight enables reduction of overall weight by about 10 pounds.

Address: Elastic Stop Nut Corp., America, Dept. AAP, Union, N. J.



**Energizer.** For jet engines using variable voltage electric starters, the new Motor Generator Corp.-designed Hobart Model 925 energizer supplies a source of constant-current, variable-voltage power. The Model 925 is rated at 500 amperes, 28.5 volts d-c continuously, but can supply 700 amperes for three minutes, or 1000 amperes for one minute.

Address: Motor Generator Corp., Dept. AAP, Hobart Road, Troy, Ohio.



**Battery.** A new "Flyte-Weight" 24-volt aircraft battery developed specifically as a replacement unit for Beech D18 airplanes and other AN 3151-2 battery installations offers higher capacity with up to six pounds weight saving over comparable batteries, according to its producer, Reading Batteries, Inc.

The new Rebat type R3151 unit weighs 47.5 pounds wet and features a new lightweight case said to offer high resistance to impact and higher capacity-to-weight ratio, and to eliminate metal case corrosion problems. Dimensions of the new unit are L—9 13/16", W—13 5/16", and H—8 3/4".

The "Flyte-Weight" unit meets all capacity requirements of Spec. MIL-B-6147 and uses military type oxides for higher capacity at low temperatures. Ratings are 24 amp./hr. at five hour rate, 22 amp./hr. at two hour rate, and 117 amperes at 5 minute rate.

Address: Reading Batteries, Inc., Dept. AAP, Reading, Pa.

AMERICAN AVIATION



## Airline Commentary

By Eric Bramley

CHICAGO's Midway Airport may soon lose its dubious honor of leading the nation in interline baggage mishandlings. Airlines are working on a brand-new system. If details are ironed out satisfactorily, they plan to contract with Allied Aviation Service Co. to handle all interline bags. Allied is to operate five radio-equipped panel trucks, making a complete circuit of every baggage location on the ramp, picking up bags every six minutes and delivering them to the proper airline. When an airline arrives late and the connection is close, "expedited service" can be requested from Allied's central dispatch office, where two trucks will be kept for emergencies. It's a plan that will cost over \$100,000 yearly, but there'll be savings because airlines won't have to operate their own vehicles. Working out the details are American, TWA, UAL, EAL, Capital, NWA, Delta-C&S, Ozark, Lake Central, North Central, and Trans-Canada. Plan sounds excellent, may be extended to other cities later.

American Airlines is undertaking, as one of 1954's big and worthwhile projects, the job of acquainting all reservations and ticket office personnel more fully with passenger tariffs. Purpose is to enable agents to give customers accurate and complete information in much less time than formerly. A passenger tariff, AA admits, is an almost unreadable document for a layman, and to Larry Gardner, organization and training manager in the reservations and ticket offices division, goes the unenviable task of drawing up the training course which will simplify the details. This is a program that should pay dividends.

Here's an all-time record: for the past 16 months, the Civil Aeronautics Board has had a hearing in progress that has already covered 26,000 pages of testimony, and the end isn't in sight. It's the investigation to determine what position, if any, the non-scheduled carriers should occupy in the transport picture. There have been two sessions in Washington, two in Miami, the current one in Los Angeles, one scheduled for Seattle and possibly another one in Washington. Our sympathies to Examiners Ralph Wisner and Richard Walsh, who have to make recommendations in the case. Previous CAB high was 7000 pages of testimony (National Airlines dismemberment case). Incidentally, a copy of the 26,000-page record in the irregular line hearing to date would cost you \$7,800, at 30¢ a page.

This story has just come to light. Cliff Stevens, advertising manager for Lockheed Aircraft Corp., was one of the Lockheed group attending the International Air Transport Association annual meeting in Montreal several weeks ago. It was his first trip to Canada, but he worked day and night and never got out of the hotel. So, on the day after the meeting closed he had about three hours before plane departure and decided to hire a car and a driver for some sightseeing. However, he was so tired he fell asleep in the first five minutes and had a wonderful snooze driving around Montreal. Cliff would still like to see the city.

NEW SALES PROMOTIONS: Trans-Canada Air Lines, in a four-mailing campaign, sent real and imitation playing cards at 10-day intervals to 484 Canadian business executives. Each imitation card carried a promotional message. By fourth mailing, each executive had a full deck of TCA playing cards. Campaign cost less than \$500, won two direct mail awards . . . Delta-C&S is selling (35¢) a 7-inch unbreakable 78 rpm record for youngsters—"Let's Play Pilot" and "Let's Play Stewardess." Record does an excellent job of selling Convair 340 and Delta-C&S . . . Mohawk Airlines is making effective use, on special occasions, of a "live trademark"—a Mohawk Indian boy from Onondaga Reservation. He's called "Little Moh" . . . American Airlines' new movie, "The Big Vacation," describes combination plane-auto trip to Hollywood, Sierra Nevadas, Yosemite, San Francisco and other points.

JANUARY 18, 1954

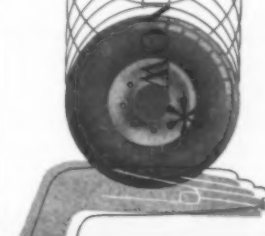
LOOK AT IT FROM THIS ANGLE...

WRITE FOR THE COMPLETE

*Hytrol*

STORY—NOW

With Hydro-Aire's HYTROL Anti-Skid Braking System you get 4 tire-lives from every 3 airplane tires you buy. And HYTROL insures safe, controlled stops even on icy runways.



\*HYDRO-AIRE Inc.

3000 WINONA AVENUE, BURBANK, CALIF.

Subsidiary of Crane Co.



# U. S. Domestic Airline Revenues & Expenses, Quarter Ended Sept. 30, 1953

AIRLINES	TOTAL OPERATING REVENUES	PASSENGER REVENUES	MAIL REVENUES	EXPRESS REVENUES	FREIGHT REVENUES	EXCESS BAGGAGE REVENUES	NON-SCHEDULED TRANSPORT REV.	TOTAL OPERATING EXPENSES	AIRCRAFT OPERATING EXPENSES	GROUND & INDIRECT EXPENSES	NET OPERATING INCOME
American	\$ 55,619,502	\$ 48,873,047	\$ 1,856,570	\$ 1,012,855	\$ 2,782,416	\$ 542,688	\$ 155,599	\$ 46,756,019	\$ 24,268,137	\$ 22,487,882	\$ 8,863,483
Branniff*	7,729,698	7,004,292	236,677	118,826	178,220	65,294	59,459	7,782,557	3,896,958	3,781,599	51,141
Capital	12,376,341	11,209,705	290,883	275,969	224,994	70,138	179,220	11,047,502	5,388,390	5,659,112	1,326,839
Caribair	293,791	243,522	28,794	• • • •	6,998	1,912	2,236	291,590	117,841	173,709	2,241
Colonial	1,908,437	1,732,550	69,718	12,489	21,811	13,835	52,681	1,860,769	858,645	1,002,124	47,668
Continental	2,970,786	2,502,808	265,088	21,854	62,533	21,801	31,300	2,690,287	1,437,515	1,252,772	280,499
Delta-CGS	10,423,096	9,354,808	365,379	223,177	338,527	95,793	19,732	10,372,082	5,192,942	5,199,142	50,012
Eastern	30,724,650	28,327,777	617,213	393,716	347,575	382,861	21,492	30,023,360	17,354,715	12,668,645	701,290
Hawaiian	1,413,449	1,063,613	150,587	• • • •	169,496	19,532	5,353	1,360,219	628,271	731,948	53,230
National	6,664,541	5,747,783	175,843	55,472	288,891	93,922	40,061	6,325,906	3,303,068	3,022,838	338,635
Northeast	2,946,676	2,490,018	357,561	19,384	46,763	19,468	989	2,427,138	1,165,725	1,261,413	519,538
Northwest	13,080,032	11,869,003	431,290	195,520	276,638	109,143	38,113	10,964,951	6,158,106	4,806,845	2,115,081
Trans Pacific	538,651	411,812	100,952	753	10,889	3,164	836	461,021	176,716	284,305	77,630
TWA	36,916,864	33,335,237	1,406,496	677,062	920,299	266,512	29,698	31,843,364	17,437,457	14,409,907	5,073,500
United	44,763,008	39,765,086	1,922,306	900,933	1,414,551	387,231	35,266	36,633,246	17,696,395	18,936,851	8,129,762
Western	6,385,527	5,858,669	207,498	73,997	96,773	33,728	15,424	5,175,135	2,725,967	2,449,168	1,210,392
TOTALS	234,752,049	209,789,730	8,482,855	3,982,007	7,187,374	2,127,022	687,419	205,911,108	107,786,848	98,124,260	28,840,941

\* Branniff's figures do not include operations of local service route 106 operated by Branniff as result of Branniff-TWA merger.

## U. S. International Airline Traffic for September, 1953

AIRLINES	REVENUE PASSENGERS	REVENUE PASSENGER MILES	AVAILABLE SEAT MILES	PASSENGER LOAD FACTOR	U. S. MAIL TON-MILES *	FOREIGN MAIL TON-MILES	EXPRESS TON-MILES	FREIGHT TON-MILES	TOTAL TON-MILES	REV. TRAFIC	AVAILABLE TON-MILES	% AVAILABLE TON-MILES USED	REVENUE PLANE-MILES	SCHEDULED MILES	% SCHEDULED MILES USED
American	9,046	6,606,000	9,607,000	68.76	14,925	4,583	576	174,951	888,108	1,395,945	63.62	183,550	183,550	100.00	
Branniff	2,538	5,929,000	12,790,000	46.36	65,885	6,921	• • • •	88,252	822,283	1,764,515	46.60	290,609	293,872	98.71	
Colonial	4,230	3,272,000	4,402,000	74.33	1,152	790	• • • •	4,641	352,595	671,300	52.52	77,730	48,100	97.32	
Delta-CGS	2,947	3,559,000	6,995,000	50.88	10,891	1,024	• • • •	97,304	479,416	965,637	49.65	149,895	153,772	97.47	
Eastern	11,100	16,506,000	23,684,000	69.69	45,906	• • • •	• • • •	66,745	1,819,864	3,273,971	55.59	394,420	352,595	100.00	
National	8,403	4,025,000	8,289,000	48.56	4,719	• • • •	1,276	31,096	449,994	1,130,636	39.80	141,714	142,080	99.74	
Northeast	7,036	12,066,000	20,887,000	57.77	96,704	22,093	13,535	594,937	2,020,729	3,145,601	64.24	505,781	507,317	97.11	
Panagra	10,726	10,766,000	20,623,000	52.20	30,921	29,595	• • • •	275,051	1,533,225	2,761,016	55.53	494,332	478,789	99.70	
Pan American	62,387	68,839,000	103,919,000	66.24	253,221	53,893	• • • •	1,932,412	8,864,048	12,955,020	68.42	2,119,175	1,888,577	97.00	
Latin Amer	64,359	81,578,000	122,070,000	66.83	709,034	171,571	• • • •	1,158,161	10,561,881	15,756,376	67.03	1,997,758	1,886,974	98.37	
Atlantic	12,744	43,271,000	60,406,000	71.63	350,614	98,661	• • • •	603,778	5,711,401	9,999,389	57.35	1,086,236	1,064,537	99.95	
Pacific	7,869	7,775,000	15,040,000	51.70	31,608	• • • •	• • • •	461,269	1,300,682	2,229,432	58.34	334,262	291,760	100.00	
Alaska	21,692	56,171,000	77,172,000	72.79	358,034	133,897	• • • •	742,557	7,139,265	9,680,061	73.75	1,639,568	1,648,366	98.45	
TWA	5,142	12,729,000	16,986,000	74.94	47,375	• • • •	• • • •	30,458	1,365,560	1,836,598	74.35	297,167	302,283	96.72	
United	230,219	333,092,000	502,870,000	66.24	2,020,989	523,028	15,387	6,261,572	43,309,051	67,525,497	64.14	9,711,659	9,242,572	98.39	
TOTALS	230,219	333,092,000	502,870,000	66.24	2,020,989	523,028	15,387	6,261,572	43,309,051	67,525,497	64.14	9,711,659	9,242,572	98.39	
* U.S. mail ton-miles figures include air parcel post.															
NOTE:															
1. Above figures include both scheduled and non-scheduled operations.															
2. Data in above tabulations were compiled by American Aviation Publications from reports filed by the airlines with the Civil Aeronautics Board. Figures for American Airlines include that carrier's service to Mexico but not to Canada; for Braniff to South America; Delta-CGS to South America; Colonial to Bermuda; Eastern to Puerto Rico; National to Havana; Pan American to the West Indies; Northwest to Orient and Honolulu, and United to Honolulu. Operations of U.S. carriers into Canada are included in domestic reports to CAB, in accordance with CAB filing procedures.															

\* U.S. mail ton-mile figures include air parcel post.

### NOTE:

1. Above figures include both scheduled and non-scheduled operations.
2. Data in above tabulations were compiled by American Aviation Publications from reports filed by the airlines with the Civil Aeronautics Board. Figures for American Airlines include that carrier's service to Mexico but not to Canada; for Branniff to South America; Delta-CGS to South America; Colonial to Bermuda; Eastern to Puerto Rico; National to Havana; Northwest to Orient and Honolulu, and United to CAB, in accordance with CAB filing procedures.

## U. S. Local Service Airline Traffic for September, 1953

AIRLINES	REVENUE PASSENGERS	REVENUE PASSENGER MILES	AVAILABLE SEAT MILES	PASSENGER LOAD FACTOR	MAIL TON-MILES	EXPRESS TON-MILES	FREIGHT TON-MILES	TOTAL TON-MILES	REV. TRAFFIC	AVAILABLE TON-MILES	% AVAILABLE TON-MILES USED	REVENUE PLANE-MILES	SCHEDULED MILES	% SCHEDULED MILES COVERED
Allegheny	21,774	3,246,000	6,639,000	48.89	5,491	11,188	• • •	326,344	758,796	43.01	316,165	315,080	99.28	
Bonanza	2,252	1,179,000	3,390,000	34.78	2,037	1,235	2,716	118,571	334,706	35.43	141,251	141,210	99.25	
Branniff*	5,389	1,039,000	1,936,000	53.67	2,045	1,922	2,488	105,490	193,615	54.48	80,673	82,080	98.29	
Central	3,533	544,000	2,813,000	19.34	3,132	727	2,179	56,318	355,826	15.83	148,261	151,014	98.19	
Frontier	12,414	3,136,000	7,566,000	41.45	7,175	5,624	33,431	345,572	720,932	47.93	359,833	357,130	99.68	
Lake Central	6,511	983,000	3,648,000	26.95	2,188	7,519	• • •	98,507	392,969	25.07	163,737	164,616	99.07	
Mohawk	16,082	2,700,000	5,165,000	52.27	2,624	5,241	5,785	254,184	606,523	41.91	245,901	241,330	98.64	
N. Central	23,921	4,297,000	8,378,000	51.29	9,131	16,005	• • •	387,309	955,620	40.53	398,939	396,362	99.33	
Oark	11,476	1,983,000	6,346,000	28.97	3,204	4,978	• • •	193,517	675,040	28.67	273,849	274,426	99.32	
Piedmont	24,037	5,108,000	10,812,000	47.24	8,803	9,617	20,689	527,530	1,235,719	42.69	514,883	506,874	99.37	
Pioneer	10,802	2,977,000	6,231,000	47.71	8,069	3,414	14,855	310,279	535,174	53.02	265,429	261,592	99.61	
Southern	9,341	1,602,000	5,158,000	31.06	5,919	7,676	• • •	166,891	558,861	29.86	245,599	249,592	98.40	
Southwest	18,787	3,870,000	6,552,000	59.07	6,015	3,887	6,921	385,552	724,437	53.22	254,930	252,889	99.43	
Trans-Texas	9,359	2,003,000	7,661,000	26.14	7,459	3,745	9,441	212,003	875,381	24.22	364,742	363,842	99.92	
West Coast	15,456	2,763,000	6,284,000	44.04	4,112	2,653	3,415	260,321	645,944	40.30	300,189	301,358	98.33	
TOTALS	194,094	37,431,000	89,079,000	42.02	77,454	84,431	101,920	3,748,388	9,619,593	38.97	4,074,331	4,019,425	99.11	
Helicopter Services														
HAAS	• • •	• • •	• • •	• • •	2,584	• • •	• • •	2,584	5,779	44.71	29,021	29,021	100.00	
Los Angeles	• • •	• • •	• • •	• • •	3,941	• • •	• • •	3,958	11,209	35.31	24,503	29,916	81.54	
N.Y. Airways	298	6,000	42,000	14.28	4,096	• • •	122	4,771	13,803	34.56	35,088	38,486	89.66	

\* Figures cover operations of local service route 106 operated by Branniff Airways as result of Branniff-NCA merger.

NOTE: Above figures include both scheduled and non-scheduled operations.

\* Figures cover operations of local service route 106 operated by Branniff Airways as result of Branniff-TWA merger.

NOTE: Above figures include both scheduled and non-scheduled operations.



OPERATING  
INCOME  
INCOME  
INCOME

3,483  
2,241  
8,839  
2,241  
7,668  
4,499  
1,012  
290  
230  
635  
538  
881  
630  
500  
762  
392  
941

SHARES  
OUTSTANDING

00  
71  
32  
47  
00  
74  
23  
70  
00  
37  
95  
00  
45  
72  
99

PAID  
IN FULL



## Sign of a good time to fly

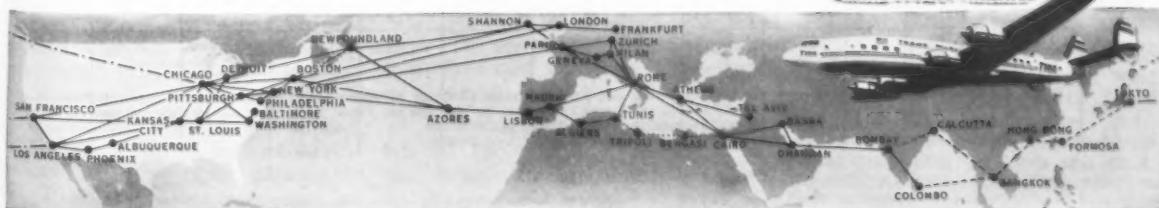
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TRANS WORLD AIRLINES



# U. S. Local Service Revenues & Expenses, Quarter Ended Sept. 30, 1953

AIRLINES	TOTAL OPERATING REVENUES	PASSENGER REVENUES	MAIL REVENUES	EXPRESS REVENUES	FREIGHT REVENUES	EXCESS BAGGAGE REVENUES	NON-SCHEDULED TRANSPORT REV.	TOTAL OPERATING EXPENSES	AIRCRAFT OPERATING EXPENSES	GROUND & INDIRECT EXPENSES	NET OPERATING INCOME
Allegheny	\$ 1,093,448	\$ 660,749	\$ 397,453	\$ 17,762	\$ . . .	\$ 2,842	\$ 4,878	\$ 1,066,879	\$ 488,013	\$ 578,866	\$ 26,569
Bonanza	525,332	217,765	294,409	3,216	4,481	1,676	2,454	455,307	204,180	251,127	70,025
Brantiff	193,599	184,597	3,440	2,643	1,843	872	. . .	271,257	119,667	151,590	-77,658
Central	456,037	88,033	359,101	2,420	3,886	922	508	576,212	256,981	319,231	-120,175
Frontier	1,260,333	506,212	691,016	6,124	37,502	1,894	11,725	1,181,730	519,879	661,851	78,603
Lake Central	544,994	162,426	356,575	10,749	. . .	701	906	592,513	273,504	319,009	-47,519
Hobart	738,088	541,682	173,164	6,299	11,334	1,763	1,329	759,857	379,903	379,954	-21,769
N. Central	1,472,067	810,116	628,921	20,484	. . .	6,233	4,289	1,388,199	693,883	694,316	83,866
Oscar	864,902	313,392	531,723	7,263	. . .	1,723	9,822	916,419	478,537	437,882	-51,517
Piedmont	1,450,879	1,022,610	379,608	10,118	17,586	8,029	5,270	1,405,276	757,336	647,940	45,603
Pioneer	837,845	525,246	275,168	4,604	15,544	7,344	3,654	975,657	525,716	449,941	-137,812
Southern	820,453	288,918	512,582	8,744	. . .	1,428	564	796,608	387,874	408,734	23,845
Southwest	954,242	583,204	262,863	6,493	11,061	2,334	83,602	912,551	445,100	467,451	41,691
Trans-Team	977,952	332,378	525,339	3,748	11,302	1,871	703	1,070,187	499,463	570,724	-92,235
West Coast	892,445	482,796	391,456	4,932	7,236	1,603	2,386	900,167	443,871	456,296	-7,702
Wiggins **	27,187	2,306	24,181	330	. . .	4	199	27,003	10,307	16,696	184
TOTALS	13,109,803	6,722,430	5,906,999	115,889	121,775	41,237	132,289	13,295,822	6,484,214	6,811,608	-186,019
Hel. Air Service	140,634	. . .	133,237	. . .	Helicopter Services	. . .	. . .	114,457	69,913	44,544	26,177
Los Angeles	173,374	. . .	173,108	. . .	. . .	. . .	. . .	181,347	126,710	54,637	-7,973
N.Y. Airways	177,573	5,746	167,175	. . .	1,421	36	3,090	327,683	187,788	139,895	-150,110

\* Figures cover operations of local service routes operated by Braniff Airways as result of Braniff-MCA merger.  
 \*\* Figures for Wiggins are through July only. Company terminated operations as of August 1, 1953, per CAB order E 7534.

# U. S. All-Cargo Airline Operations, Quarter Ended Sept. 30, 1953

TRAFFIC							REVENUES & EXPENSES						
AIRLINES	FREIGHT TON-MAILES	AVAILABLE TON-MAILES	% AVAILABLE	REVENUE PLANE-MAILES	SCHEDULED MILES	% SCHEDULED	TOTAL OPERATING REVENUES	FREIGHT REVENUES	NON-SCHEDULED TRANSPORT REV.	TOTAL OPERATING EXPENSES	AIRCRAFT OPERATING EXPENSES	GROUND & INDIRECT EXPENSES	NET OPERATING INCOME
July, 1953													
Aerovias	200,176	321,330	62.29	53,555	61,700	80.79	U.S. airline financial reports to the Civil Aeronautics Board are now summarized on a quarterly rather than a monthly basis.						
Fly. Tiger	3,318,146	4,030,133	82.33	614,799	624,806	89.26							
Riddle	823,481	962,710	85.54	174,166	145,514	100.00							
Slick	3,114,119	4,166,375	77.66	636,066	768,921	63.52	This change was made necessary by the fact that the airlines are no longer required to follow a standardized reporting system for Form 41 financial data on a monthly basis, but file monthly company management reports which vary among carriers.						
TOTALS	7,455,922	9,480,548	78.64	1,478,546	1,600,941	77.55							
August, 1953													
Aerovias	214,761	308,640	69.96	51,440	58,400	85.58	The standardized Form 41 financial schedules will continue to be filed quarterly with CAB and will be summarized on that basis.						
Fly. Tiger	2,857,199	3,686,276	77.51	563,056	624,806	84.36							
Riddle	796,264	939,786	84.73	165,663	145,514	100.00							
Slick	3,006,030	4,387,026	68.52	597,038	775,946	70.16							
TOTALS	6,874,254	9,321,728	73.74	1,377,197	1,604,666	78.96							
September, 1953													
Aerovias	209,372	349,740	59.87	58,290	60,825	78.29	Quarter Ending September 30, 1953						
Fly. Tiger	3,207,245	3,745,683	85.63	570,802	600,775	91.74							
Riddle	940,790	1,000,875	93.99	173,302	140,820	100.00							
Slick	3,371,493	4,804,328	74.43	672,493	697,494	83.98							
TOTALS	7,728,900	9,900,626	78.06	1,474,887	1,499,914	88.36							
Aerovias	624,309	979,710	63.72	163,235	130,925	81.55	\$ 171,926	\$ 158,216	\$ . . .	\$ 174,423	\$ 111,878	\$ 62,545	\$ -2,497
Fly. Tiger	9,382,590	11,462,092	81.86	1,748,617	1,350,387	88.41	2,079,655	1,465,995	86,964	1,606,893	1,093,850	513,043	472,762
Riddle	2,560,535	2,903,371	88.48	513,131	431,848	100.00	407,311	384,451	28,751	418,828	257,216	161,612	-11,517
Slick	9,491,642	13,357,729	73.50	1,905,597	2,242,361	72.19	2,303,405	1,398,702	199,813	2,345,503	1,415,025	930,478	-42,098
TOTALS	22,059,076	28,702,902	76.85	4,330,630	4,705,521	81.48	4,962,297	3,407,364	315,528	4,545,647	2,877,969	1,667,678	416,650
NOTE: 1. Under CAB reporting requirements traffic figures are supposed to be exclusive of defense contract operations. However, financial figures, i.e., total operating revenues and net operating income, reflect the net result of defense contract operations. This net figure is reported under Incidental Revenues, Account 4100, on CAB Form 41.													
2. U.S. Airlines has not yet filed reports covering operations of this period.													

NOTE: 1. Under CAB reporting requirements traffic figures are supposed to be exclusive of defense contract operations. However, financial figures, i.e., total operating revenues and net operating income, reflect the net result of defense contract operations. This net figure is reported under Incidental Revenues, Account 4100, on CAB Form 41.  
 2. U.S. Airlines has not yet filed reports covering operations of this period.

## Braniff Asks Return to Subsidy Status

Braniff Airways, on a non-subsidy mail rate since October 1, 1951, has petitioned the CAB for subsidy relief. The carrier told the Board it needs total annual mail pay of \$4,425,541, as compared to \$998,638 realized in the past year under its 53¢ per ton-mile service rate.

It was the first time since CAB separated subsidy and service mail pay that a carrier which had reached self-sufficiency had to petition for subsidy help.

Braniff cites as the cause various CAB decisions, particularly the Board's insistence that Braniff operate the merged routes of Mid-Continent Airlines on its non-subsidy rate. Just prior to the merger in August, 1952, CAB ruled that MCA needed subsidy and fixed mail rates accordingly.

But in that same month, when the merger of MCA into Braniff was completed, CAB reasoned that Braniff could

operate the entire system, including even a local service route, at its non-subsidy rate. In a recent rate order, the Board preserved Braniff as a non-subsidy line only by off-setting capital gains from aircraft sales against mail pay need. In that order the Board indicated Braniff's non-subsidy status might be short-lived.

In addition to absorbing the MCA system, Braniff also was forced to take on additional small cities formerly served by now-defunct Mid-West Airlines, also at the 53¢ rate. In other cases, the carrier said, CAB decisions have resulted in "important sources of passenger revenue" being lost or diverted to other carriers.

Braniff said it is willing for CAB to break down a future mail rate to indicate that certain segments are operated at a service rate, while specifically identifying those segments requiring subsidy.

## Justice Dept. Finds Prior Merger Control

The controversial Colonial-Eastern Merger Case, awaiting White House action since September 14, 1953, may be back at the CAB in the near future. Primarily responsible is a memorandum from Attorney General Herbert Brownell which supports charges that Eastern exercised "prior control" over Colonial prior to their merger agreement.

The Justice memo was forwarded to CAB on December 24 for comment. There are strong reports that CAB has already requested that the White House return the case, in which the Board found the merger should be approved. But CAB does not officially confirm such actions.

Major issues in the case were the

Colonial-Eastern merger agreement, a CAB-instituted investigation into a possible Colonial-National merger, and the spectacular "prior control" charges against Eastern. CAB had adopted the position of Examiner Edward T. Stodola that the control charges, though "in violation of the Act" were not sufficient to outweigh advantages to the public of the merging of Colonial into Eastern.

The Justice Department position does not agree with this reasoning. Also interested is the Securities & Exchange Commission. If the White House returns the case it could be for rehearing, review, or with a final approval or disapproval.

### CAB MISCELLANY

**Delta-C&S Air Lines** bid to use Fort Wayne as a temporary junction for the firm's merged routes in lieu of Anderson, Muncie, New Castle has been denied by CAB.

**Independent Military Air Transport Association** has renewed bid for early individual CAB action on its "commercial charter resolution" which contemplates IMATA as a clearing house for member carriers.

**Trans-Texas Airways** has applied to CAB for renewal of its local service certificate slated to expire March 31, 1954. TTA asks either permanent or

10-year renewal.

**Continental Air Lines** and **Pioneer Air Lines** have filed motions for CAB to dismiss its investigation of a possible Continental-Braniff merger. Carriers feel investigation would delay action on their voluntary merger offer.

**Pioneer Air Lines** asked CAB permission to lease Martin 2-0-2 aircraft, formerly owned by Pioneer, now held by a subsidiary corporation.

**Airwork, Ltd.** has been recommended by a CAB Examiner for a trans-Atlantic foreign air carrier permit for all-cargo services.

## CAB News

### AS OF NOW

CAB was expected early this month to again submit its findings in the controversial **New York-Balboa Case** to the White House for Presidential action. It will mark the third such trip, the second to Eisenhower.

Hearings in the **Denver Service Case**, major transcontinental route proceedings, scheduled for April, may be delayed by a court action brought by United Air Lines this month. United wants all further steps stayed pending a court ruling on its bid for consolidation in the case of a Denver-east route application.

In terms of numbers of applicants, the **Large Irregular Investigation** hearings are half over. Twenty-nine non-scheduled airline applicants have presented their cases. Twenty-nine are still pending.

Look for a final CAB decision and White House approval in the **Trans-Atlantic Cargo Case** in March or April. Oral argument probably will be held in mid-February.

### Recent CAB Decisions

- **Capital Airlines'** proposed Saturday Family Plan Tariff suspended for 90 days pending investigation; protests of Delta, Eastern, TWA, and United upheld.

- **Pan American World Airways** tariff proposal for refunds when tourist aircraft are substituted for first-class flights on Miami-San Juan route, suspended for 90 days pending investigation.

- **Trans-Canada Air Lines** authorized to use Tampa as non-traffic stop on Montreal-Mexico City flights, and to use Kinross Airport, Michigan, in serving Sault Ste. Marie, Ontario.

- **Linea Aeropostal Venezolana** (LAV) granted renewal permit for Caracas-Havana-New York-Montreal service and new authorization for Caracas-Miami and Caracas-New Orleans operations.

- **Rutas Aereas Nacionales, S. A. (RANSA)** issued new permit for Caracas-Miami service via Aruba, Curacao, and Kingston.

### CAB Calendar

**Jan. 18**—Hearing in United Air Lines Mail Rate Case (Hawaiian Operations). Washington, D. C. Docket 2913.

**Jan. 18**—Hearing in Lake Central Airlines Acquisition Investigation. Washington, D. C. Docket 5770 et al.

**Jan. 27**—Hearing in Air Freight Forwarder Investigation. Washington, D. C. Docket 5947 et al.

**Feb. 1**—Hearing in North American Airlines Enforcement Case. Tentative. Docket 6000.

**Feb. 1**—Hearing in South Atlantic Renewal Case (Pan American World Airways). Washington, D. C. Docket 5818.

**Mar. 15**—Hearing in Certificate Renewal Case—Ellis Air Lines and Alaska Coastal Airlines. Tentative. Dockets 6264 & 6307.



## People

### MANUFACTURING

**Robert H. Charles**, who joined McDonnell Aircraft Corp. in 1941 as staff assistant to the comptroller, has now been promoted to the post of executive vice president.

**William H. Moore**, vice president of the Bankers Trust Company, has been elected to the board of directors of Republic Aviation Corp.

**Arch R. Smith**, formerly vice president and general sales manager for the Ready-Power Company of Detroit, has joined The Frank Colker Co., distributors for Towmotor Corp., as vice president and general manager of Colker's Grand Rapids branch.

**L. L. Garber** has been made a director, vice president, and general manager of The Alloy Metal Wire Co., the H. K. Porter Co.'s newly acquired division. Garber was previously general manager of Porter's Hinderliter Tool Company Division.

**Russell S. Johnson** has been named director of sales for the Eclipse Machine Division of Bendix Aviation Corp. Previously manager of automotive products sales of the division in Detroit, Johnson will make his new headquarters in Elmira.

**W. F. Schanz** has resigned as sales manager of Southern Aero, Inc., Atlanta, to enter the real estate business in Florida. Schanz will, however, continue a connection with aviation by dealing in new and used aircraft as a sideline to his real estate business.

**Fred W. Gottschling** is the new director of engineering for Greer Hydraulics, Inc.



Gottschling



MacKinnon

### AIRLINES

**D. W. H. MacKinnon** has been elected to the newly created post of vice president of engineering and maintenance of Northeast Airlines. Prior to this latest position, MacKinnon was the airline's director of maintenance and engineering.

**Frank J. Macklin**, director of the Air Traffic Conference of America's Military Bureau since its inception in 1949, has been promoted to assistant vice president-traffic for the Air Transport Association, parent organization for the Air Traffic Conference. Macklin will continue his duties as head of the Military Bureau and assume additional duties with ATC.

Also promoted by ATA were **J. B. Walker** and **John A. Lundmark**, who were made assistant executive secre-

aries. Walker is head of the tariffs and rates division and Lundmark is secretary for committees.

**Frank W. Hulse**, president of Southern Airways, has been elected to the board of directors of the Conference of Local Service Airlines.

**John R. Carver**, vice president and secretary of Mohawk Airlines, has been elected to a two year term on the board of directors of the Airlines Personnel Relations Conference.

**Edward J. Foley**, veteran of the air transportation field and presently manufacturers representative in Washington, has been appointed to the faculty of Georgetown University's School of Foreign Service to teach "Air Transportation" and "Airport Management."

**William R. Beattie**, formerly agency and interline sales manager for Braniff Airways, has taken over the post of general sales manager for Resort Airlines. Beattie's headquarters are in Resort's main offices in Miami.



The following employees recently completed 20 years or more of service in the aviation industry:

- **C. W. Maris**, American Airlines. Captain, Los Angeles. 25 years.
- **Willis M. Abbey**, Eastern Air Lines. Foreman, Miami. 25 years.
- **Wall S. Tefft**, Eastern Air Lines. Superintendent, overhaul, Miami. 25 years.
- **Thomas M. Templeman**, Eastern Air Lines. Accessory overhaul superintendent, Miami. 25 years.
- **Frederick B. Cann**, Eastern Air Lines. Captain, Miami. 25 years.
- **Basil Rowe**, Pan American World Airways. Captain, Miami. 25 years.
- **Julio Velez-Lopez**, Pan American World Airways. Porter, San Juan. 25 years.
- **Frederick G. Betts**, Trans World Airlines. Ass't director of purchasing, Kansas City. 25 years.
- **Neal L. Bliss**, Trans World Airlines. Inspector, Kansas City. 25 years.
- **Walter S. Thompson**, Trans World Airlines. Lead inspector, Los Angeles. 25 years.
- **D. L. Beebe**, United Air Lines. Chief-station ground services, New York. 25 years.
- **R. W. Ellis**, United Air Lines. Chief mechanic, Seattle. 25 years.
- **F. L. Gau**, United Air Lines. Flight dispatch manager, Denver. 25 years.
- **O. M. Haglund**, United Air Lines. Senior shop mechanic, San Francisco. 25 years.

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# INTERNATIONAL AVIATION

Edited by Anthony Vandyk



## INTERCOM

It is an impressive fact that only 11 of the world's major operators of intercontinental services have neither turbojet nor Turbo-Compound-powered aircraft in operation or on order. These carriers are: Aerolineas Argentinas (Argentina), Aigle Azur (France), Alitalia (Italy), Braniff (U.S.A.), El Al (Israel), LAI (Italy), Philippine Air Lines, SABENA (Belgium), Scandinavian Airlines System, Swissair (Switzerland), and TAI (France). In the long-haul transport market 1953 was a year of victory for the models using the Wright Turbo-Compound engine: Lockheed received orders for 47 Super Constellations, and Douglas sold 30 DC-7's (in addition to 26 DC-6B's) during the year. Comet sales announced by de Havilland in 1953 totaled 15.

## World Airline Traffic up 16% in 1953

The world's airlines (Russia and Red China excluded) carried 52 million passengers in 1953, 16% more than in 1952, according to estimates compiled by the International Civil Aviation Organization.

Cargo volume, aggregating 700 mil-

lion ton-miles, was up seven per cent from the 1952 level whereas aircraft-miles flown in 1953 increased 10%. The following table illustrates the development of air transport (scheduled international and domestic services) since 1937:

### ANNUAL TRAFFIC FIGURES BY ICAO

	Miles Flown	Passengers Carried	Passenger-Miles	Cargo Ton-Miles	Mail Ton-Miles	Average number of passengers per aircraft	Average distance flown per passenger (miles)
			millions				
1953	1170	52.0	28,580	700	185	24.5	550
1952	1059	45.0	24,540	651	175	23.2	547
1951	976	39.9	21,380	612	160	21.9	536
1950	890	31.2	16,960	518	143	19.1	544
1949	836	26.5	14,480	390	128	17.3	546
1948	789	23.5	12,990	286	114	16.5	552
1947	708	21.0	11,740	187	88	16.6	559
1937	165	2.5	880	n.a.	n.a.	5.3	350

### INCREASE OR DECREASE BETWEEN YEARS

The difference in speed between various types of transports is strikingly demonstrated by the following comparison of schedules for nonstop London-Rome flights (908 miles): Comet, 2 hrs. 40 min.; Viscount, 3.30; Constellation, 4.00; and Canadair Argonaut, 4.20.

1952-53	+ 10%	+ 16%	+ 16%	+ 7%	+ 5%	+ 6%	+ 1%
1951-52	+ 9%	+ 13%	+ 15%	+ 6%	+ 9%	+ 6%	+ 2%
1950-51	+ 10%	+ 28%	+ 26%	+ 18%	+ 12%	+ 15%	+ 1%
1949-50	+ 6%	+ 18%	+ 17%	+ 33%	+ 12%	+ 10%	+ 1%
1948-49	+ 6%	+ 13%	+ 11%	+ 36%	+ 13%	+ 5%	+ 1%
1947-48	+ 11%	+ 12%	+ 11%	+ 53%	+ 30%	+ 1%	+ 1%
1947-53	+ 65%	+ 148%	+ 143%	+ 274%	+ 111%	+ 48%	+ 2%
1937-53	+ 607%	+ 1980%	+ 3162%	n.a.	n.a.	+ 362%	+ 57%

n.a. means not available.

Nevertheless there is one route where even the turbine transport does not match the pre-war schedule. This is London-Paris, Europe's No. 1 route, where Air France has just introduced the Viscount. Although the Viscount flies the fastest service currently operated, making the 227-mile trip in 1 hr. 25 min., it is still slower than Air France's prewar schedules with Bloch 220 equipment, which connected the two capitals in 1 hr. 15 min. Moreover, in 1939 the time for the road journeys to and from the London and Paris airports was half what it is today. The net result is that the total time from downtown London to downtown Paris today is 4 hrs. 5 min., whereas before the war it was 2 hrs. 40 min.



**First flight of Hurel Dubois HD 32** (above) took place on December 29. The French "DC-3 replacement" took off at a gross weight of 12½ tons and flew for 35 minutes. Powered by two Pratt & Whitney R-1830's, the transport is the production version of the HD 31, which has been flying for well over a year. Air France has ordered 24 HD 32's and indications are that a French independent is about to order.

# INTERNATIONAL AVIATION

## MANUFACTURING

**SOVIET UNION:** Testing of Russian fighter prototypes with designations MiG-16, MiG-17, MiG-18, MiG-19, MiG-20, and MiG-21 is in progress at Novosibirsk. Also undergoing tests at the West Siberian base is the twin-engine EF-150 jet bomber which is now in production at Kuibyshev. Test pilots at Novosibirsk are switched indiscriminately from fighters to bombers, which may be the reason why 68 test pilots are reported to have been killed there to date. Aircraft are subjected to a rigorous test program including flight at supersonic speeds at altitudes of almost 60,000 feet. Fuel supply is restricted to sufficient for 300 miles.

**CANADA:** License production of the twin-engine Grumman S2F anti-submarine aircraft is to be undertaken by de Havilland-Canada at its new Toronto plant. The Canadian Navy has ordered 100 of these planes at a cost of \$40 million and this order may be increased to 250 aircraft. Canadian Car & Foundry is expected to get a major share of fuselage subcontract work. First Canadian S2F deliveries are scheduled to start in 1956.

Avro-Canada is to build a prototype of the CF-105 fighter as a successor to the CF-100 Mark IV which is now in quantity production for the RCAF. If ordered into production, the all-weather fighter could be available in quantity by 1958-59. Unofficial reports indicate that the twin-engine (type undecided—possibilities include the Avro-Canada TR-8 Super Orenda and the Rolls-Royce Conway) plane will have a top speed of around 1250 mph and a range of over 1500 miles. It will weigh about 24 tons and will have an almost dart-shaped delta wing with tail. Armament will include air-to-air rocket missiles.

**BRITAIN:** Bristol Aeroplane Co. expects that the Britannia will be certificated by late 1954. BOAC should have the first four production aircraft by the end of 1954. First prototype has logged over 200 hours of test flying, including about 100 with the production-standard Proteus 705 engine. The second prototype was scheduled to fly by the beginning of the year.

Hawker Aircraft is now working on a delta fighter. The extra-sweep version of the Hunter scheduled for production has been canceled for undisclosed reasons. Hunter

production lines at the Langley and Squire's Gate plants should be able to deliver aircraft to RAF Fighter Command squadrons next month.

**FRANCE:** The Dassault Mystere IVB (Avon with afterburner) made its first flight on December 16. A Dassault Ouragan is being used to test the Hispano-Suiza 4000 afterburner. Another Hispano-Suiza afterburner adds 32% to the basic thrust of the Rolls-Royce Nene.

**JAPAN:** Eleven Japanese companies are members of the newly established guided missiles section of the Federation of Major Industries. Among them is Nippei Industrial Co., Tokyo, which has arranged with Switzerland's Oerlikon company for technical air and license rights for guided missile production. Another firm entering the guided missile field is Nippon Air Electronics Co., which has been established by Nippon Electric Co. jointly with Canadian Aviation Electronics Ltd., Montreal.

## MILITARY

**SWEDEN:** Replacements for the Saab-29 "flying barrel" interceptor being considered by the Swedish Air Force include the Hawker Hunter and Vickers-Supermarine Swift. Also being probed is the possibility of making the Saab Lansen all-weather fighter into a day interceptor by fitting the Rolls-Royce Avon 14 instead of the standard Avon 7. Replacement of the Saab-29 is scheduled to start in 1955.

## TRANSPORT

**FRANCE:** Sale of two DC-6B's to each of the following carriers has been announced by Douglas Aircraft Co.: Aigle Azur, CGTA-Air Algerie and TAI.

**ISRAEL:** El Al Israel Airlines has bought a fourth early-model Constellation. Carrier recently repaid its \$1,500,000 Chase National Bank loan obtained in 1950 and 1951 in connection with its fleet modernization program.

**BRITAIN:** Silver City Airways, independent operator, now offers a combination air-truck cargo service between London and Paris at 40% of the IATA all-air rate. Freight is trucked from London to Lympne, flown to Le Touquet, and then trucked on to Paris.



**Second SNCASO Vautour** prototype (photo above) made its first flight on December 16. This aircraft has a cockpit accommodating only one crew member, whereas the first model is a two-seater.

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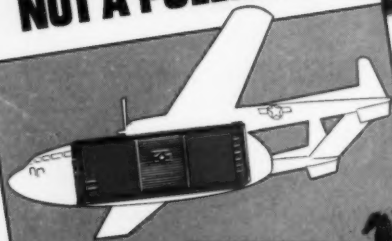
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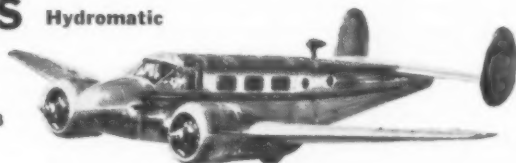
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WAYNE W. PARRISH

## En Route



**Golden Parisian.** Every so often in this aviation writing business I get a chance to slip temporarily out of the daily grind into a life of luxury. Some people are unkind enough to call these deviations press junkets. I much prefer to call them "working press trips" even if nobody does believe me.

I find it increasingly easy to shift gracefully and swiftly into a routine of de luxe hotels, fine restaurants, A-1 entertainment, and fine scenery. I take it all in stride.

I guess I have what is called a split personality; the Good Lord gave me all the ability with which to enjoy luxurious living but he forgot to give me the means to acquire same. It's always a crushing blow to be having a wonderful time in Paris one day and be in my office next afternoon trying to get caught up with routine business.

All this is a prelude to telling you about the latest de luxe trip and believe me when I say it was de luxe. I was one of the chosen elite—32 total—to participate in the inaugural flight of the new weekly Golden Parisian service of Air France. Man and beast, I could take that one again without the slightest pain.

**L.A. Via Africa.** This air age is cockeyed. Last August I had accepted an invitation to speak to the aviation committee of the Los Angeles Chamber of Commerce on December 2. I did so reluctantly. I knew with absolute certainty that there'd be a swell press trip somewhere about December that would interfere. It happened, sure enough, but not quite.

The Golden Parisian flight to Paris was November 20. Thanks to this air age I flew to Paris, Algiers, drove to an oasis in the Sahara, flew back to Paris for a day, had 48 hours over a week-end in Washington to get caught up on work, and made the Los Angeles speech with a full day to spare. Just a mere 12,342 miles from Washington to Los Angeles via Africa and Europe in a dozen days and I missed hardly one favorite TV show.

But if I hadn't had that L.A. date, I would have hired myself a car in North Africa and seen some more of the country. I sure hated to rush back. But in my humble life I have to grab the luxuries when they come up.

**Really De Luxe.** Yes, indeed, this Golden Parisian is quite a dish. You wouldn't believe what could be done with an airplane until you see it. It's a Lockheed Super Constellation (powered with those Wright Compound engines) which Air France flew to Paris empty and fitted up to a Queen's taste on the other side. Without any question it's the most luxurious airplane in commercial service today. It won't hurt you poor folks at all to know how your betters live, so listen to this.

Maximum passenger capacity is 32. Yep, just 32 in a Super Connie, which normally can seat 88 comfortably. If you are just an ordinary millionaire and want the least desirable accommodation you can pay \$25 extra on top of the first class fare and get along with a big club car seat which really reclines.

If you are a multi-millionaire, or just a Florida gambler on vacation or a Hollywood star on a studio expense account, you can have a stateroom, which Air France calls a skyroom. First you pay your \$25 admission fee. Then you pay \$125 more for the skyroom. But if you have somebody with you, let's say a wife just for the hell of it, the two of you can have a skyroom for a complete admission charge of two first class fares plus \$175.

Now don't get the idea that a skyroom is a double berth or something like that. Believe me, each person has a spring mattress, full-length, and a real full-size pillow. And for day occupancy in these skyrooms you don't face a couple of other people. You don't even face seats. You sit opposite some very beautiful woodwork behind which the beds are folded, and you can draw the curtains and have privacy at all times.

**Lounge & Skyrooms.** Just as an added trimming, there is a lounge for playing cards or drinking or just talking, leather seats and all, for eight people. Nobody sits in this lounge during landing or take-off, so it's just a frill for the leisurely upper classes who insist on moving somewhere to have their coffee and brandy after dinner.

To get a recap, let's say we are entering the airplane. In the entrance way, along the side opposite the door and occupying far more than the usual amount of space, is a galley. It's almost a kitchen. In the rear are eight club seats and two lavatories. Moving for-

ward, the first compartment is the lounge. Then come eight skyrooms, two on each side. Then two more lavatories and then eight club seats.

Since each skyroom would have to be occupied by two persons to reach the maximum capacity of 32, it is likely that the average load, even when it's a good load, will be less. There are still a few birds left in this world who will fork up the \$25 plus \$125 for single occupancy of a skyroom.

What impressed me was the workmanship of the interior. These French can do a high class job when they want to. The woodworking was top-notch and the color scheme for the draperies, etc., was fine. The galley seemed to be very good, too, a notch above the unimaginative galley stuff made in the U.S., which looks like an 1890 tin roof after a year's use. (Both airlines and aircraft manufacturers could do well to get better galley equipment, seems to me. Some of it even has a habit of falling out.)

**Finest in Service.** I've had the belief for a long time that there can be no such thing as really de luxe air service, i.e., anything comparable to steamship travel. Anytime you have to sleep in a seat, or sleep in a berth, it's not really de luxe. Only a steamship stateroom provides genuine comfort. This isn't the fault of the airlines, it's merely the physical and economic limitations of the airplane.

I've had the firm belief that the railroads irretrievably lost forever transcontinental first class traffic in the U.S. the very day commercial airplanes spanned the entire country during one day, thus eliminating the necessity of spending a night on board. I also have the very firm belief that the very day when commercial airplanes are able to span the Atlantic in the course of one day, steamship travel will suffer a fatal blow.

No matter how comfortable you try to make an overnight plane crossing, it simply can't compare in comfort to a steamship. Cross the Atlantic in a day and air travel will do to the steamships what the airlines have done to transcontinental rail travel.

**Loss Leader.** Having said that, let me add that the Golden Parisian is as great a luxury as can be obtained within the limitations of the airplane. Air France can well be proud of it. Economically, of course, it is a loss-leader, as most such services are. It is a virtual impossibility to make such a service turn a profit or even break even. But as a sales weapon, as a means of attracting the de luxe trade, it has a lot to offer.

All those who have anything to do with building and operating commercial airplanes ought to take a look at the Golden Parisian just to see what can be done to an airplane interior. It's definitely a milestone in the air, even if the bulk of airlines can't afford it.

Next issue I'll tell you about the trip. Also about those Arab dancing girls down in the Sahara; you have no idea what I went through to bring you some real hot dope straight from the date palm trees.



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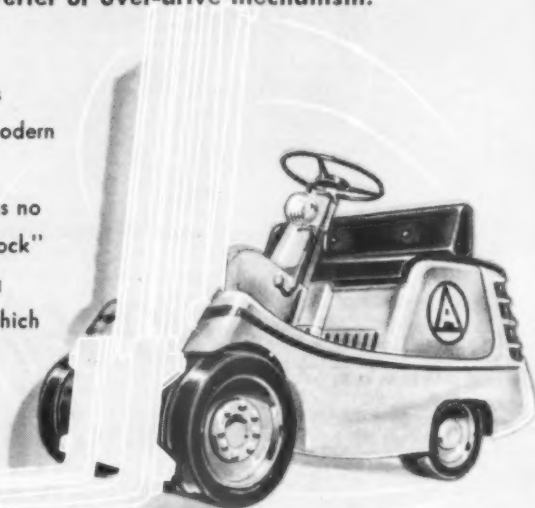
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# News at Deadline

## PAA Named in Antitrust Suit

The Department of Justice has filed a civil antitrust suit in Federal District Court, New York, charging Pan American World Airways, W. R. Grace & Co., and Pan American-Grace Airways with violations of the Sherman antitrust law. Suit is aimed at the 50-50 control exercised over Panagra by Pan Am and Grace, and has been in the making since 1945.

The suit seeks to divest Pan Am and Grace of their stock ownership in Panagra and to enjoin each from "engaging in conduct restraining or monopolizing air transportation."

PAA is charged with preventing Panagra from extending its routes and operations in competition with Pan Am. Grace is charged with preventing action by Panagra contrary to interests of Grace's steamship lines. Both are accused of practices "to impede development of other U. S. flag airlines" operating in the U. S.-Latin American market.

## Rheem Becomes Largest Northrop Stockholder

Thirty thousand shares of Northrop Aircraft stock have been purchased by Rheem Manufacturing Co., which has its aircraft division located at Downey, Calif.

The purchase, which amounts to about 4.6% of Northrop's stock, makes Rheem one of the largest stockholders in Northrop. A. E. Ponting, a Rheem director for 10 years and manager of the Rheem office at San Francisco, is expected to be named to the Northrop board of directors as a result.

## Land May Serve As G-D Consultant

Adm. Emory S. Land, who resigned as president of the Air Transport Association at the end of the year, reportedly may join General Dynamics Corp. as a consultant within a few weeks. A long-time director of G-D, Land would presumably be consulted only on specific projects. The firm is active in both aircraft and submarine construction.

## Murray Announces New ANDB Charter

First official indication that the controversial civil-military dispute over a "common" navigation system remains unsolved came last week with the announcement by the Under Secretary of Commerce, Robert B. Murray, Jr., of a new charter for the Air Navigation Development Board.

The announcement said that a first major job has been assigned to the "new" ANDB—that of evaluating TACAN, a short range navigation system under development by the military. It explained that some of the techniques used in TACAN are different from those in civil VOR-DME but "may have a possible later application" in the common navigation system.

The new ANDB charter, according to Murray, is designed to strengthen the Board and to give it a workable organization to solve common military and civil problems. It provides that the Board membership be drawn from a high policy level in the army, navy, air force, and Department of Commerce, and that a new member be added to represent the Secretary of Defense.

## Atom and Economy to Keynote U.S. Program

President Eisenhower, in his State of the Union message, presented Congress with a program for peace that will be centered on defense planning and economic preparedness.

The United States will use its atomic bombs if necessary, the President stated, and pointed out that this will mean greater emphasis on the air power of the Navy and the Air Force.

Swift conversion from partial to total mobilization was also cited as vital to the nation's security. "For the first time," said the President, "mobilization officials know what the requirements are for 1000 major items needed for military uses. These data will show us gaps in our mobilization base."

The President also foresaw a cut of \$5 billion in expenditures during the next fiscal year, renewed efforts to increase postal rates, and a maintenance of the status quo, at least temporarily, for corporation taxes and excise levies.

## T. E. Braniff Dies in Private Plane Crash

Thomas E. Braniff, founder and president of Braniff Airways, was killed January 10 with 11 others in the crash of a private plane near Shreveport, La., while returning from a week-end of duck hunting.

Already a successful businessman in Oklahoma City, Tom Braniff was 44 when he brought into being an airline by flying a five-place Stinson-Detroiter plane 115 miles between Oklahoma City and Tulsa to inaugurate regular service in June 1928.

In the quarter century since, the carrier has grown to impressive stature and now flies a total of 18,942 certificated route miles from Chicago-Milwaukee and Minneapolis-St. Paul to cities in South America and serving, via the Houston and Miami gateways, eight Latin American countries.

In the 1930's, Thurman Braniff, son of the airline president, was killed in a private plane crash. The private plane in which his father was fatally injured yesterday was a Grumman Mallard owned by the United Gas Co.

Braniff Airways has a safety record of more than two billion passenger miles flown in complete safety.

## BOAC Grounds Comets For Examination

The British Overseas Airways Corporation temporarily grounded all Comet jet transports last week to permit "a minute and unhurried technical examination." The action followed the January 10 crash of a Comet in the Tyrrhenian Sea after take-off from Rome en route to London. The accident killed 29 passengers and six crew members.

Capt. R. V. Wolfson, a senior BOAC official and general manager of its overseas subsidiaries, was among the passengers.

The most recent crash was the fourth major accident experienced by Comets since their introduction in airline service in May, 1952. Three other "minor" incidents involving considerable aircraft damage reportedly have occurred.

When grounded, the Comet jets had flown over 30,000 hours and more than 12 million passenger-miles in airline service, according to de Havilland.

## C. R. Smith Hails Air-Atomic Strategy

"The deterrent force represented by atomic weapons and the capacity to deliver them through the air is . . . the only sure war-winning force. Science has doomed the old ways," C. R. Smith told the Los Angeles Chamber of Commerce in a speech January 12.

Asserting that nothing affects the American business picture more profoundly than national defense spending, Smith told the audience that both the technological developments represented by the hydrogen bomb and the new policy of preparing for national defense on a "long haul" basis make necessary a new approach to strategy.

He noted that the trend in both money and manpower for defense now seems to be turning downwards, which he termed a "significant and promising development . . . Compounding the national military power with relatively fewer men . . . (is) a heartening trend."

The shift away from "divisions, divisions, and still more divisions" represents greater economy as well as the only effective deterrent to war, Smith declared, making concentration upon air-atomic power both a necessity and an opportunity to capitalize on "a concept of national defense more suitable to the American technical genius."

## North American Gets Contract for FJ-4

A contract to build Navy FJ-4's has been awarded to North American Aviation at Columbus, Ohio. The FJ-4, which is powered by a Wright J65 engine, will fly at speeds "above 650 mph," according to the Navy.

The contract for production will reportedly carry work at Columbus into 1956. Eight hundred production workers were scheduled to be laid off at Columbus on January 11 because of stretch-outs, with 300 office workers slated to follow.

## Naming of Plesman Successor Postponed

No successor to the late Dr. Albert Plesman, KLM founder and president, will be named in the immediate future, according to a decision by the line's board of directors. The management of the company consequently remains in the hands of the executive vice presidents, F. von Balluseck, F. Besancon, and M. J. van der Ploeg.

## First Production F3H Accepted by Navy

The Navy has accepted the first production model of the McDonnell F3H-1N at the firm's plant in St. Louis. The present version of the all-weather carrier fighter is powered by a Westinghouse J40; later models will be powered by an Allison J71.

## Morse Asks Reason for Westinghouse Jet Move

The Defense Dept. has been asked by Sen. Wayne Morse (Ind., Ore.) to explain why it is permitting Westinghouse to transfer its jet engine production to Kansas City from South Philadelphia.

Morse suggested that the move might have been provoked by considerations involving the United Electrical Workers, the plant's bargaining agent, which was expelled from the CIO because of alleged Communist ties.

## Medical Institute to Own Hughes Aircraft

Howard Hughes, who last month set up the Howard Hughes Medical Institute under Delaware law, has announced that the non-profit foundation will become the sole owner of the Hughes Aircraft Co. He is planning to remain as president of Hughes Aircraft.

The electronics and guided missile firm, which has plants at Culver City and Tucson, was eliminated as a subsidiary of Hughes Tool Co. and created as a separate Delaware corporation at the time the Institute was established. The company now becomes a wholly owned HHMI subsidiary and Hughes Aircraft's profits will be used for medical research.

Hughes' announcement noted that for the last 25 years his will has provided for the creation of a medical research institute but added that he decided to start it during his lifetime about five years ago.

## N. F. Vanderlipp New Bellanca President

New president and general manager of Bellanca Aircraft Corp. is N. F. Vanderlipp, who was previously vice president. G. M. Bellanca, formerly president and chairman of the board, continues in the latter capacity and as director of research operations.

## Flight Refueling Gets Orders for \$3.5 Million

Nearly \$3½ million in Air Force orders have been awarded to Flight Refueling, Inc., the Danbury, Conn. firm which is in the process of moving to Baltimore. The firm manufactures the probe-and-drogue in-flight refueling system, which is currently receiving increased attention from the USAF.

The orders, according to the Air Materiel Command, are comprised of \$2.245 million for refueling systems, \$1.222 million for 37 units of spare and special parts, and \$15,000 for other spare parts.

## Ryan and G-D Report New Orders, Earnings

Favorable reports on business have been released by Ryan Aeronautical and General Dynamics Corp. The new year began for Ryan with \$1.5 million in new orders. One million dollars of the total came from Pratt & Whitney for R-4360-59 exhaust systems, and another \$350,000 came from General Electric for J47 components.

From General Dynamics came word that net sales for 1953 were estimated at \$190 million, an increase of 40% over 1952. Backlog was estimated at \$183 million.

## Atwood to Head IAS

J. L. Atwood, president of North American Aviation, has been elected president of the Institute of Aeronautical Sciences for 1954. Installation is scheduled for the IAS Honors Night dinner in New York, January 25.

## Canada Shapes New Aircraft Program

A new aircraft production program is under way in Canada, designed to level out the peaks and valleys in the nation's armament effort during the next three years.

Key points in the program:

- Reported contract award to A. V. Roe Canada Ltd. to complete CF-105 twin-jet, delta-wing interceptor design studies and build prototype;

- Canadair Ltd. contract to proceed with modified Bristol Britannia design studies and prototype;

- De Havilland Aircraft of Canada contract to build Grumman S2F sub-hunters.

7  
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by C. H. Calhoun,  
Vice President, Maintenance and  
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